THE SEVENTEENTH LACUS FORUM 1990

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1990

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THE SEVENTEENTH LACUS FORUM 1990

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INTRODUCTION

The Seventeenth Forum of the Linguistic Association of Canada and the United States (LACUS) was hosted by the California State University Fullerton, California, between August 7 and August 11, 1990.

Abiding by what has become the traditional format, the Special Lecture section inaugurates this volume with the Presidential Address by Robert Di Pietro: "Operatic Discourse and the Naturalness Criterion". Following are, first, the Inaugural Lecture delivered by Charles J. Fillmore: "Clausal Connectives in Japanese and Related Mysteries", and subsequently, the Invited Lecture by Jonathan J. Webster: "Linguistic Information Processing Using the Functional Grammar Processor".

Part I of this volume is aptly closed by those papers which were judged as contributing significantly to linguistic knowledge and presented by authors not yet tenured. This year, The Presidents' Prize honored both a post-doctoral as well as a pre-doctoral candidate. The post-doctoral award was conferred on Haru Yamada for her paper: "Point-Making in American and Japanese Business Meetings". The pre-doctoral award went to Cynthia F. Meyer for her paper: " 'What Shall We Talk About Next?': Cognitive Topic in the Production and Interpretation of Conversation". The Judging Panel, consisting of the current LACUS President and all the former Presidents in attendance at the meeting, also recognized with the Presidents' Commendation, Misato Tokunaga for the paper entitled "A Linguistic Manifestation of the Japanese Sociological Concept *uchi* 'insiders' and *soto* 'outsiders': The Structure of Honorifics".

The diversity of the topics presented this year reflects the tradition of eclecticism established early on by the LACUS organization. Yet, this cherished philosophy does present quite a challenge to the editor who wishes to offer a neatly organized volume. An attempt has been made to group papers in a coherent manner, either under a topic area, or under a similar theoretical framework. Nonetheless, several papers could have been classified differently or even subsumed under more than one topic area. To those authors who may disagree with the classification of their work, my apologies.

The production of a volume like this is not possible without the cooperation and help of a number of people. My thanks to those authors who made my task easier by complying with the specifications and guidelines. Particular thanks to Valerie Becker Makkai and to Ruth Brend. Both gave generously of their time and suggestions, attempting to pave the way for an inexperienced editor. I am in debt foremost to Valerie, not only for the technical production of the volume, but for her guidance in the process of selection and classification of the papers. My indebtedness extends to David Lockwood, who took the time to edit our own paper, and to my graduate students, Ruth and John Denstaedt who assisted me.

My heartfelt thanks are also extended to those hard working people who helped hold the conference. Indeed, without the unwavering assistance of Jo Ann Robinson, executive secretary of the Linguistics Department, and Elaine Hutchison, the Dean's administrative assistant, our conference might have otherwise suffered.

Finally, I am very grateful for the support provided by the chair of the Linguistics Department, Thomas Klammer, and by Don Schweitzer, Dean of the School of Humanities and Social Sciences. Notably Dr. Schweitzer was generous,

not only with financial support, and with time and advice, but he also put at our disposal his own staff and excellent facilities to insure the success of the conference.

Fullerton, April 1991 Angela Della Volpe

I

SPECIAL LECTURES

1990 PRESIDENTIAL ADDRESS

OPERATIC DISCOURSE AND THE NATURALNESS CRITERION

Robert J. Di Pietro
University of Delaware

Opera is often thought of as a form of music on a par with symphonic works and concertos. While it is certainly musical, opera stands aside from instrumental creations of music because of the importance that the libretto or 'verbal script' has in it. In earlier work on the subject (Di Pietro 1976, 1979) I have found it preferable to consider opera as a kind of theater--specifically 'musical theater', in which the music and the words combine in ways that are unique. If anything, opera is a composite art form, integrating drama with dialogue, dance and music. Among contemporary modes of artistic expression, it remains perhaps the closest to ancient Greek drama which was apparently danced or sung or at least recited to musical accompaniment. The verbal component of opera has always been its most significant element and the central problem confronted by opera composers has always been that of placing music and the dance at the service of language. When successful, the result has been a unique kind of theater and a fruitful area of research for the opera-loving linguist.

A look at the history of opera reveals that its originators--members of the Florentine Camerata dei Bardi--rejected the polyphonic music of the madrigals that were popular at the time and sought a simpler melodic line that would be more suited to vocal dramatization. Spearheading this new approach in 1581 was a composer named Vincenzo Galilei, the father of the more famous astronomer. His treatise (Dialogo della musica antica et della moderna) was a diatribe against polyphonic music. The Camerata went on to publish, in 1602, a collection of songs by Caccini entitled Le nuove musiche ('The new musics'). These songs had s imple vocal line accompanied by a bass line or basso continuo (Drummond 1980).

The meetings of the Camerata must have been lively ones as its members busied themselves with reviving ancient Greek and Roman drama through music. The first notable result of their efforts was the composition by Rinuccini and Peri of L'Euridice to commemorate the marriage of Maria dei Medici to Henry IV of France on October 6, 1600 (Drummond 1980).

Rinuccini and Peri's creation was the first in the operatic style but it was to be eclipsed nine years later in Mantua by Claudio Monteverdi with his composition on the same classical theme entitled Orfeo e Euridice (1609). Monteverdi's opera had almost everything operas have had ever since: an orchestra, moveable scenery, singers, director and a plot. What it lacked was the aria (Orrey 1972). In keeping with the Camerata's emphasis on unfolding a story line, the vocal component remained basically recitative.

Several researchers have emphasized the moral and social significance of opera. According to Drummond (1980) some form of music-drama has been present in human societies since the earliest times. Opera shares a property found in social ritual: movement with expressive or symbolic purpose (Drummond 1980, p. 15). This property leads both participants and onlookers to accept pretence as reality. Opera was never intended to be mere entertainment but something ennobling and spiritually uplifting (Orrey 1972, p. 163). Martorella (1982) observes that opera came to represent the wealth and strength of its patrons. Various courts drove themselves into bankrupcy trying to outdo each other in lavish operatic productions. By the eighteenth century, the mercantile class of Venice had taken opera out of the courts and made it a public spectacle. Due to production costs and the needed collaboration of so many different people, the demise of opera has seemed imminent for centuries. George Frederick Handel, for example, went bankrupt around 1738 trying to compose operas in England when fashions had started to shift and the competition from other composers became very stiff. He was able to recoup some of his losses by turning to oratorios. Handel's oratorios had some of the same dramatic qualities found in his operas, notably the use of melodic line to project character types.

In the nineteenth century, opera became associated with national movements and the strivings of people to be liberated from foreign domination. The composer Giuseppe Verdi figured prominently in the efforts of Italians to unify. His opera Nabucco (1842) seemingly dealt with a biblical theme but the Italians readily identified themselves with the ancient Israelites bereft of a homeland. The chorus from that opera (Va' pensiero) became the rallying hymn of all those who aspired to independence in the peninsula. Nabucco was actually banned in London and scorned as 'agitator's music' by critics in Milan.

The significance of opera in international politics could constitute a study by itself. At a time in the history of the world when several countries of Europe were extending their spheres of influence through colonial expansion, the language and culture of Italy were being diffused through the popularity of the nation's operas and their composers. The nineteenth century bore witness to the building of impressive opera houses in the most improbable places such as the jungles of Brazil and the mining towns of Colorado. The Khedive of Egypt commissioned Verdi to write the opera Aida to mark the opening of the Suez Canal. After some delay, Aida had its debut in Cairo's new opera house on December 24, 1871 and was an instant success. The continuing influence of Italian on world culture through opera can be felt by attending the singing competitions held each year in Philadelphia, PA and presided over by the great tenor Luciano Pavarotti. Those who wish to listen to the singers are asked to sit quietly in the balcony while evaluations are made on each young aspirant's performance. The judges usually speak in Italian among themselves and as they address the singers because it is the only language shared by all. Many of the competitors come from Korea and other Asiatic nations. In the world of opera, Italian stands as a small but resolute linguistic island yet to be inundated by the tidal wave of international English.

At this point, members of this audience may be asking themselves if investigations into opera can ever be more than a diversion for the serious linguist. Even if it is true that opera is more theater than pure music, what professional interest can a linguist have in this art form? My answer is that the study of language on the operatic stage contributes to our greater understanding of human creativity, specifically of the aesthetics of language use (cf. Di Pietro 1976, 1979 for a more rigorous defense of this point). Just as there is an aesthetics to the practice of medicine and dentistry, there must also be an aesthetics to the practice of linguistics. Physicians must view their patients as living, complex organisms, and linguists must not lose sight of the immense significance that language has for its human users. In the words of Victor Yngve (1986), we must strive for a 'human linguistics.' The linguistic study of opera is intended as a contribution to this kind of linguistics.

The desire to put a human face on linguistics does not require us to abandon our training in the field. In fact, we are driven harder to

achieve more reliable explanations of the whole of our subject matter. If opera is dramatic discourse, as I think it is, then we linguists have a stake in exploring the ways in which composers and librettists use music, language and the physical structure of the stage to shape and create discourse that has a dramatic effect on the audience. Thanks to the research of sociolinguists, we have learned something about how people manage discourse in everyday conversation. We have become familiar with the phenomena of self/other repair, overlap, and latching. Irving Goffman (1959) has made us aware of how people use language to portray themselves in everyday life. Linguistic philosophers like Austin (1962) and Searle (1969) have pointed out the many notions we can express and functions we can carry out with language. Pragmatists like Grice (1975) have provided us with useful theories about how conversation is ideally ordered.

Armed as we are with all of this knowledge and analytical procedures, we should be able to join in the search for what Verdi, the non-linguist, had the insight to call the 'scenic word'--*la parola scenica*. Verdi used this concept to isolate those expressions from everyday discourse that lend themselves to dramatic treatment. In joining in this search we will have to forsake the traditional 'conduit metaphor' of language function whereby thoughts form in one interlocutor's head and are then passed through the air in language sounds to be picked up by another's ears and coded back into thoughts that are identical to those in the first person's head. Such a model does not explain why we have metaphor nor why language sounds can have various emotional effects on us. We need to approach language from several different directions rather than try to encorporate every linguistic phenomenon into one neat package of rules and levels. If our models of language cannot accommodate the scenic word, they should be at least compatible with larger, non-linguistic explanations of the dramatic element in the scenic word. The study of discourse in opera is a start in this direction.

A simple, initial observation to make about discourse in opera is that it is either sung or recited. When sung, the operatic text usually follows a melodic line. Recited text, however, can be accompanied or not by music and can be either *ad libitum* or performed against a rhythmic beat. Some modern composers like Alban Berg have tried to break down the distinction between melody and recitative, creating

a style known by its German name, Sprechstimme. An example of Sprechstimme can be found in the opera Wozzeck which Berg wrote between 1917 and 1921. This style has not enjoyed much popularity and seems to have been ignored by most contemporary composers.

As pointed out above, recitative has existed for a longer time than arias have. An illustration of the effectiveness of recitative to advance the plot while conveying commentary of various kinds is found in Mozart's Don Giovanni. The libretto for this opera was written by a master, Lorenzo da Ponte. The following excerpt is taken from the scene where the Don begins his customary amatory overtures to a woman whom he does not recognize as a former victim of his. He calls out sweetly to her and then, too late, he realizes that it is none other than Donna Elvira. The exchange is between the Don and Donna Elvira, joined by the servant Leporello:

Don Giovanni:	Signorina...	(Oh, Miss...)
Donna Elvira:	Chi è là?	(Who's there?)
Don Giovanni:	Stelle! Che vedo?	(Heavens! What do I see?
Leporello (aside):	Oh bella! Donna Elvira!	(Oh, oh!) (Donna Elvira!)
Donna Elvira:	Don Giovanni! Sei qui, mostro, fellon, nido d'inganni!	(Don Giovanni! Here! Monster, Felon! Deceiver!
Leporello:	Che titoli cruscanti! Manco male che lo conosce bene.	(Nice labels! Good that she knows him well!

After Donna Elvira launches into her story of how he entered her life and destroyed it with his lies, Leporello makes an observation that tells the audience exactly what kind of person the Don is: Pare un libro stampato! ('This all sounds like pages from a printed book.'). Although living under the patronage of a nobleman, Mozart and da Ponte were free to make their criticisms of nobility through the libretti of their operas.

As in most recitative done in the classic style, the singers modulate their voices in a broad characterization of spoken intonation, while accompanied by chords on a piano or harpsichord. The delivery of the lines changes tempo to convey excitement and the agitated state in which Donna Elvira finds herself. Although not indicated in the script, it is clear that Leporello's remarks are directed to the

audience.

Recitative has fallen out of use in opera but strangely enough has resurfaced in the contemporary popular musical style called 'rapping.' The beat is more accentuated but the stylized delivery of spoken language is just as evident as in the recitative of the eighteenth century. Young M.C., a master rapper, performs these lines from a piece called 'Bust a move':

> This here's a tale for all the fellas
> (who) try to do what those ladies tell us
> (and) get shot down 'cause they're overzealous.
> Play hard to get and females get jealous.

In some respects, a rap resembles an aria. It has a rhyme scheme and provides a commentary rather than an advancement of a plot. More comparisons between operatic recitative and contemporary rap would be overdrawn since no one has yet to compose an opera utilizing rap.

Turning back to opera, we encounter the development of the aria and the style of singing known as bel canto. It was in this style that the melodic line was most highly perfected, leaving us with many beautiful and memorable arias. Gaetano Donizetti was a master of bel canto but unlike other masters he did not let vocal pyrotechniques eclipse the dramatic nature of the libretto. A sample of his skill in projecting an argument through bel canto singing is the following one, from his comic opera l'Elisir d'amore ('The elixir of love'). To fend off the unwanted attentions of Nemorino, Adina gives him her 'permission' to direct his affections elsewhere. Ama altrove she tells him--go love some place else--è a te concesso. When he refuses, she offers him some advice:

> Per guarir di tal pazzia, ch'è pazzia
> l'amor costante,
> dêi seguir l'usanza mia: ogni dì cambiar
> d'amante.
> Come chiodo scaccia chiodo, così amor
> discaccia amor.

> 'To cure yourself of such madness--for
> constant love is madness,
> you should follow my advice: change lovers
> every day.
> Just as one nail drives out another, so does
> one love dislodge another.'

Nemorino refuses to accept Adina's advice and gives his own opinion of how love works:

> Col cambiarsi qual tu fai
> può cambiarsi ogni altro amor,
> ma non può, non può giammai
> il primiero uscir dal cor.

> To change as you do is possible for every other love,
> but it can never work to drive the first love from one's heart.

The give and take dissolves into an exchange of yes's and no's, all in beautiful bel canto style:

> Adina: Sì, sì, sì!
>
> Nemorino: No, no, no!
>
> Adina: Sì, sì, sì!
>
> Nemorino: No, no, no!
>
> Adina: Sì, sì, sì!

The structure of an operatic duet calls to mind Grice's (1975) 'cooperative principle' regarding conversation. According to Grice, conversations should be organized around a common purpose or theme. Contributions from each conversant must be orderly, purposeful and maximally efficient. What may be only ideal with regard to everyday conversation becomes a reality in the operatic duet. Meter, tempo, musical key and harmony all place constraints on the way that musical exchanges are constructed.

These same formal constraints also give composers the opportunity to manipulate discourse in ways that are not open to playwrights. Unlike non-musical theater where allowing several people to speak at the same time on different topics confuses the audience, operatic scenes are possible in which several singers contribute to the scene at the same time. The structure of the musical score renders multiple performances as cooperative and organic wholes. The composer Giacomo Puccini was especially adept at orchestrating complex libretti so that different activities could transpire on stage in balance and harmony. In the Café Momus scene of Act II of his opera La Bohème, Puccini manages to have seven different characters interact. The main theme is the falling out between Musetta and Marcello. The two lovers happen not to be talking to each other. Marcello is seated at a table in the café with his friends Colline, Schaunard

and Rodolfo. Rodolfo has brought along Mimì, the flower girl he has just met. Musetta appears, accompanied by Alcindoro, a wealthy, elderly man who plays the sugar daddy to her. Musetta and Alcindoro sit at a table not far from where the others are sitting. Musetta glances slyly at Marcello and then wonders aloud if she can make him jealous of old Alcindoro. While Mimì and Rodolfo talk about their own situation, Schaunard makes a comment about the 'show' that Musetta is putting on for Marcello:

> Essa a l'un parla perchè l'altro intenda!
>
> 'She speaks to one (i.e., Alcindoro) so that the other will overhear.'

Summoning all the coyness in her, Musetta begins to describe her personal charms--all to enrage Marcello even more:

> Quando m'en vo, quando m'en vo soletta per la via la gente sosta e mira, e la bellezza mia tutta ricerca in me, ricerca in me da capo a piè.
>
> ---
>
> 'Whenever I stroll through the streets, people stop and stare and take in my beauty, from head to foot.'

Marcello leaps up, exclaiming to his friends:

> Legatemi alla seggiola!
>
> 'Tie me to the chair.'

Alcindoro, for his part, is shocked at Musetta's exhuberance. Musetta lays it on even more thickly:

> ...ed assaporo allor la bramosia sottil che dagl'occhi traspira e dai palesi vezzi intender sa alle occulte beltà. Così l'efflu-vio del desio tutta m'aggira, felice mi fa, felice mi fa.
>
> 'And I savor that subtle desire that exudes from their eyes and reveals their secret thoughts. This cascade of yearning enflames me, filling me with happiness.'

While Musetta is putting on her show, Mimì turns to Rodolfo and offers the observation that Musetta must be smitten with his friend Marcello. Rodolfo explains to Mimì that Musetta left Marcello because

she wanted a more stable life. The other two bohemians are moved to express their opinions. Colline says he prefers a good book and a pipeful of tobacco to any dealings with the likes of Musetta. Schaunard philosophizes that lovers enjoy their chains, regardless of who is doing the binding and who is being bound (trovan dolce al pari il laccio, chi lo tende e chi ci dà). All of this action takes place simultaneously, each vocal line being interwoven with the others until Musetta decides that Marcello has been sufficiently weakened and the time has come to get rid of old Alcindoro. She does so by complaining of a pinch in her shoe. As Alcindoro hurries off to buy her a new pair she joins Marcello and the others.

Five distinct interactions are portrayed in this scene:

(1) Musetta playing the kept woman to Alcindoro, the sugar daddy;

(2) Musetta playing the flirt and teasing Marcello, the jealous lover;

(3) Musetta commenting to herself (and thus to the audience) about the effect she is having on Marcello;

(4) Mimì playing the outside observer who perceives Musetta's love for Marcello while Rodolfo criticizes Musetta for leaving his friend Marcello;

(5) Colline and Schaunard, the two other friends of Marcello and Rodolfo, commenting on Musetta's behavior.

All of these interactions go on at the same time but are bound together by the music.

The availability of a musical score allows the composer of opera to execute several other dramatic effects that are not available to the playwright. For example, Verdi was able to intensify the dramatic change that comes over Othello as he is led to believe that Desdemona has been unfaithful to him. In the original play, Shakespeare had Othello recall in the last act some lines from the love scene that took place in the first act when he nurtured none of his evil thoughts about his wife:

> I kiss'd thee ere I kill'd thee; no way but this, killing myself, to die upon a kiss.

While Shakespeare's command of dramatic effect could never be doubted, the great bard did not have a full

orchestra at his disposal. Using his musical resources, Verdi is able to simplify the verbal component of the scene and reinforce the dramatic effect by having Otello sing some of the love theme that accompanied the lines from the first act:

> Un bacio...un bacio ancora...ah! un altro bacio.
>
> 'A kiss, yet another kiss...Oh! One more kiss.'

The German composer Richard Wagner had shown the way to use musical themes as leitmotifs. Here Verdi employs a similar technique to help the audience remember an earlier state of mind and, in doing so, experience the impact of a husband driven by jealousy to murder his loving wife (cf. Di Pietro 1979 for an earlier discussion of this point).

In their recent book, Analysing conversation, Taylor and Cameron (1987) discuss the feature of 'multifunctionality'. This feature is present whenever an interlocutor attempts to accomplish several goals or perform a variety of speech acts with the same utterance. Tannen and Wallat (1982) had already analyzed an instance of utterance multifunctionality in the case of a pediatrician who was obligated to direct her comments about a sick child she was examining to three different audiences. The examination took place in a clinic with the mother present and before a group of medical professionals. Tannen and Wallat found that shifts in register occurred as the pediatrician distributed her remarks among those in attendance. Changes were found in intonation and rate of speech, as well as in a number of paralinguistic features.

An operatic rendition of utterance multifunctionality is found in Gianni Schicchi, composed by G. Puccini. The story of Gianni Schicchi was taken from Dante. Schicchi was presumably an impersonator who lived in Florence during the fourteenth century. According to Florentine laws of the times, the property of anyone who died intestate would go to the city. Such a calamity threatened the Donati family when its patriarch, Buoso Donati, died without leaving a will. Before the news of Buoso's death became public knowledge, the Donati's hid the corpse and hired Schicchi to impersonate the man on his death bed. Schicchi's job was to dictate a will before witnesses and a notary, making certain that each possession went to a member of the family. Falsifying a will was a serious crime in Florence and was

punishable by amputation of a hand and banishment from the city. Schicchi who was in need of money to provide a dowry for his daughter decided to put himself in the will. The family could not show their anger at Schicchi for fear of exposing their own misdoings.

In order to play his role convincingly in the opera, the performer playing Schicchi must put on the voice of an enfeebled, dying man. The musical accompaniment provides an air of tension to reflect the consternation of the family members who stand hopelessly by as Schicchi disposes of their inheritance. Whenever he senses that the family might give him away, Schicchi reminds them of what will happen to them in that eventuality. As he prepares to consign the mills at Signa to himself, for example, he suddenly sings out in a slightly louder voice: Addio, Firenze ('Farewell, Florence'). To the notary and the witnesses, this exclamation is open to being interpreted as the expression of grief felt by a dying man as he prepares to depart his beloved city. He lifts his arm with his hand hidden in his sleeve and adds: e ti saluto con questo moncherino ('and I bid you farewell with this stump'). These lines and this gesture stand as examples of multifunctionality. To the notary and witnesses they are the mutterings of someone very close to death but to the relatives they are grim reminders of the punishment that awaits them should they expose Schicchi.

A discussion of discourse in opera should include some mention of how paralinguistic features are treated. Grouped in this category are such effects as sneezes, laughter and screams. The opera stage places constraints on sneezers, laughers and screamers that are not necessarily operative in non-operatic conversation. First of all, the particular paralinguistic event must fit into the musical score, or at least not be disruptive to it. Secondly, it must sound as realistic as possible. Thirdly, the performer usually has no detailed instructions as to how to carry the effect off. Sometimes the results are very good and sometimes they are not. The mezzo-soprano singing Berta's role in the Richmond Opera Treasury recording of the Barber of Seville (Rina Cavallari) manages a nearly perfect little sneeze that is supposedly brought on by Berta's addiction to snuff. Jussi Bjoerling, the Swedish tenor, provided his audience with a very effective self-deprecating laugh in the role of Canio, the clown with

the unfaithful wife in I Pagliacci. Cesare Siepi, the Italian bass, was diabolically effective with his mocking laugh at the love shared by Faust and Marguerite. Not so effective was the unnamed screamer in my own twenty-year-old RCA Victor recording of Pietro Mascagni's Cavalleria Rusticana. This role calls for the woman to express great shock at finding that Compare Turiddu has been stabbed to death. Actually, she manages the scream better than the delivery of the accompanying spoken line: hanno ammazzato Compare Turiddu ('they've killed Compare Turiddu). The problem is that she uses an American English intonation pattern, one that might be uttered by a hostess who has just spilled the soup on her guest's lap. A serious matter but not the dramatic equivalent to witnessing a stabbing.

Among the phenomena associated with conversational performances are overlap (when two or more people talk at the same time) and latching (when a second interlocutor initiates speech without respecting the pause that should follow the first interlocutor's contribution to the discourse (see Schenkein 1978 and Tannen and Wallat 1982 for further discussion of these devices and their representation in transcription). It is not difficult to find operative equivalents to overlap since duets and other types of musical exchanges provide ready examples. Less evident are cases of latching, especially in non-recitative episodes. The abruptness of onset by the second singer must not disrupt the tempo or harmonic structure of the music. The exchange between Rigoletto, the court jester, and Sparafucile, the professional assassin, at the beginning of the second act of Verdi's Rigoletto is characterized by abruptness which leads to the impression of furtive speech. An inspection of the libretto without hearing the musical accompaniment readily suggests that latching must be taking place.

The scene is a dark alley in Mantua. Rigoletto is on his way home after spending the day at court. Sparafucile steps from the shadows and approaches Rigoletto: Signor! ('Sir!'). Thinking that he is about to be mugged, Rigoletto responds abruptly: Va, non ho niente. Sparafucile reassures Rigoletto that he does not want anything (nè'il chiesi) and goes on to present himself as a 'man of the sword' (a voi presente un uom di spada stà). He is a man who can get rid of rivals and he is sure that Rigoletto has rivals (un uom che libera per poco da un rivale, e voi ne avete). Rigoletto's terse answer

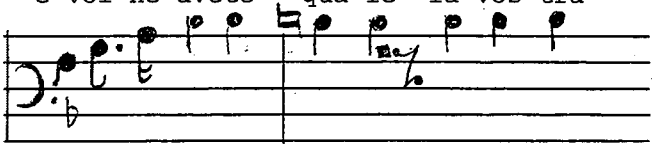
(Quale? 'What rival?') suggests his surprise that Sparafucile knows anything about him. Sparafucile quickly explains by indicating Rigoletto's house and remarking that it is the place where his 'lady' resides (la vostra donna è là). This brief exchange provides two examples of latching:

(1) Sparafucile: Signor
Rigoletto: Va, non ho niente.

(2) Sparafucile: ...e voi n'avete
Rigoletto: Quale?
Sparafucile: la vos-
donna è là.

A look at the musical score reveals that the spots where these latchings occur are marked within the same musical phrase. The first singer starts the phrase and the second one completes it. For example, in the second example cited above, Rigoletto's Quale? is sung on two b naturals up from Sparafucile's two b flats, after which Sparafucile completes the musical phrase picking it up on Rigoletto's two b naturals.

Sparafucile Rigoletto Sparafucile
e voi ne avete qua-le la vos-tra



There are at least two other instances of latching in this scene: (3) when Rigoletto cuts off Sparafucile's morbid explanation of how his sister helps in the killing by distracting the victim and (4) when Rigoletto orders Sparafucile to leave:

(3) Sparafucile: Chi voglio attira e allor
Rigoletto: Com-
prendo

(4) Sparafucile: Qui sempre a sera
Rigoletto: Va!

Having two singers collaborate in executing the same musical phrase is a simple but effective way to convey the effect of clipped speech in spoken conversation.

It should be evident by now why I like opera.

I hope that my enthusiasm for this subject has convinced this audience that there are more than personal reasons for undertaking linguistic explorations of operatic discourse. Bakhtin (1981), the Russian critic, made us aware of the social nature of literary discourse by bringing to our attention the many voices that speak within a text. Germont's pleas with Violetta to leave his son so that his daughter might marry into a respectable family makes sense only if we listen to the voices that speak from a nineteenth century society in which reputation was more important than wealth and any family member who consorted with courtesans brought shame on the entire family. In witnessing this touching scene from La Traviata we hear other voices that affirm Violetta's noble spirit, a spirit that transcends the ways she earns her living and leads her to agree ultimately to Germont's request.

As the field of linguistics continues on its pathway to maturity perhaps those of us who practice it will become more interested in uncovering how language serves each of the voices that society imparts to those who function in it. The conduit metaphor is hardly an appropriate one before the entire kaleidoscope of human existence. Opera is the art form that simulates more than any other the multidimensionality of human discourse. It does so through manipulating its libretti as well as its melodic lines. I included the term 'naturalness criterion' in the title of this talk because I believe that such a criterion is at work in operatic discourse. Opera composers have always been concerned with their libretti, placing music at the service of language, rather than the other way around. Perhaps they are only continuing an orientation inherited from the Camerata dei Bardi of four centuries ago. In any event, their quest for the parola scenica will go on as long as they work at their craft. Those of us who are blessed with expertise in language analysis should not dismiss as uninteresting the many ways they have found to meld words with music.

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INAUGURAL LECTURE

CLAUSE CONNECTIVES IN JAPANESE
and
RELATED MYSTERIES

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In recent months I have been enjoying the experience of carrying out a close analysis of a longish Japanese text, taking advantage of research assistance and software support made possible by a grant from the Japanese telecommunications firm NTT, and the volunteer labors of a group of Japanese-speaking students and visiting scholars in Berkeley[1]. The goal of the project we're engaged in is to examine all of the markers of clause-to-clause linkage found in the text, and to discover and describe their functions in it. Unfortunately, since we continue, week by week, to be surprised by what we find, we are not as close to a full understanding of what is going on as we would like to be by now, so my paper today has to be taken as a kind of diary of the early phases of a research project still in progress, to which I append some comments on why I think what we're doing might lead to success.

We wanted to take a large text, break all of its complex sentences into their constituent clauses, sort all intra–sentential clause sequences in the text in various ways, paying special attention to the morpho–syntactic markers of clausal connections, and look for whatever correspondences between form and meaning or between form and function our data revealed. The easy part consisted of sorting clause–sequences by the overt markers of their connection and by certain grammatical properties of the constituent clauses. We then sorted these according to various hypotheses on what might be the semantic, rhetorical or structural connections which their markers signalled. Our thought was that if we experimented long enough with whatever pre–theoretical or "etic" descriptions of inter-clause relations occurred to us, eventually we would strike pay dirt and be in a position to figure out just what is going on.

There's a danger in this sort of exercise of spending a lot of time spinning one's wheels, to be sure, but we felt that this danger could be reduced if we constrained our data-base in particular ways. Needing a text which could be counted on to have clearly restricted and easily discovered communicative purposes, we decided to examine textual material in the general area of scientific discourse. And to make sure that the complexity of the text's content did not excessively challenge the principal investigator's level of scientific education, we selected as our object of investigation one of the main science textbook series currently used in Japanese middle schools – works written for children in their early teens.

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[1]Major collaborators on the project are Seiko Yamaguchi Fujii, Yoko Hasegawa, and Kyoko Hirose; we were assisted in many ways by Katsuya Kinjo and Prof. Yutaka Hayashi; the NTT project manager is Masanobu Higashida.

One of the benefits in having this particular text is, as we have learned, that it is stylistically very tightly regimented. There is a great deal of variation in the use of specific clause connectives across dialects and genres in Japanese, between written and spoken Japanese, and in the speech of younger and older speakers, and in this stage of our work we have been happy not to have to keep track of such differences. While we may have on our hands a quite unrepresentative sample of the language as a whole, we believe that our corpus offers us an excellent starting place for what we want to do. A better way of saying that is that if the method of analysis used in this exercise fails *even with* such a stylistically constrained text, we will at least come up with that useful negative result, guaranteeing that we will not try to use it with anything that incorporates a fuller range of genres, dialects, and communicative purposes.

The text is a four-volume series[2] entitled "Rika" (science), made available to us in both electronic and hardcopy form by NTT. We have the full Japanese text on-line and – since certain text-manipulating software tools available to us in Berkeley work better with alphabetical files – we are in the process of creating a romanized version of it.

Our corpus includes material of four major sub-genres:

(1) instructions addressed to the students on how to explore the world, and how to conduct specific experiments

A typical multi-clause sentence of this sort could mean something like "light a match, open the gas flow regulator, and ignite the gas". The sentences in this part of the text do not include imperatives, using mainly the plain or non–past form of verbs for expressing instructions.

(2) descriptions and explanations of what the world is like and of what is going on in the experiments the students are conducting

A typical sentence might be something like "as the gas cools down, its volume decreases". These sentences are invariably in the so–called non–past form.

(3) narratives based on events in the lives of famous scientists (Archimedes, Lavoisier, Newton, etc.)

Such narratives are mainly expressed in past–tense sentences. It is in one such segment that we learn, for example, that Archimedes, shouting "Eureka!", ran naked from the bathhouse to his home, and immediately started setting up his famous experiment.

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[2]Perhaps it should be made clear that the four volumes are thin, the print is large, and there are lots of pictures.

And lastly, though of lesser importance in the text as a whole, we have

> (4) drills in which the students are asked to check their level of understanding.
>
> *These segments of the text include imperative sentences, instructing the students to perform certain pencil–and–paper tasks, to try their hand at explaining certain presented phenomena, etc.*

The portion of the corpus that I will be appealing to for the present report is the first half of the first volume of the series. In this segment there are approximately 280 multiclause sentences, these containing 740 clauses altogether. In deciding what counts as a multi-clause sentence we take a conservative surface-structure view, ignoring complex–clause analyses of causatives, passives, aspectuals, complex motion verbs, etc. We also omit from consideration clausal modification of nouns, except for those nouns which are dedicated to representing certain sorts of circumstantial notions, or when a clause modifying a noun is itself multi–clausal.

Clausal connectives in Japanese have the structural properties expected of canonical verb-final languages. The set includes particles cliticized to a clause-final finite verb or adjective, various non-finite forms of the last verb or adjective in a non–final clause, and case-marked clause-modified nouns which serve as indicators of time, place, manner, etc.[3]

In addition to the connectives whose markers appear at the end of non-final clauses in multi-clause sequences, there are in Japanese various kinds of adverbial connectors that can appear at the beginning of the second member of such a sequence - words and phrases with such meanings as 'however', 'thereupon', 'accordingly', 'for example', and the like. We are ignoring the latter sort of cohesion markers, though obviously any serious study of the corpus as a genuine piece of discourse would have to go beyond such a limitation. Our present study is specifically limited to the grammar and semantics of those devices that mark the end of one clause to signal its relation to what follows.

Initial Remarks on Conjunction and Conditionality

There are two well-known major differences between clause-linking devices in English and Japanese: full-clause coordinate conjunction, and conditional sentences. I will mention these separately because, although they are of considerably typological importance, they did not appear very frequently within our sample.

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[3]The Japanese grammatical tradition groups them somewhat differently, but that is mainly because the tradition depends on a kind of morphemic analysis based on syllabic representations.

Coordinate Conjunction. Japanese lacks anything corresponding to the kind of all-purpose coordinate conjunction that we find in many Indo-European languages. English-speaking learners of Japanese tend to suspect that their instructors are simply being obtuse when they refuse to tell them how to say *and* in Japanese, or when their instructors explain either that there is *no* way of saying *and* in Japanese or that there are *many* ways of saying *and* in Japanese. The functions of the English conjunction *and* are those of simply grouping or co-asserting; the word does not contribute any special meaning of its own. Most strikingly when compared with Japanese, English *and* is able to conjoin elements at almost any level of the grammatical hierarchy: sentences, phrases, individual words (including prepositions), certain kinds of non-constituents, and - though perhaps somewhat unnaturally - even, at times, prefixes.

We find full-clause conjunction, as in [1];

[1] I was driving north and she was driving south

predicate conjunction, as in [2];

[2] He walked to the telephone and picked it up

and prepositional-phrase conjunction, as in [3].

[3] She ran up the stairs and into the dining hall

(In examples [2] and [3] we find the temporal order of the events represented iconically in the sentences reporting them, but this is not a feature of the meaning of *and*.)

In [4] we see elements connected which are not otherwise single constituents of their clauses, and in [5] we find prefixes conjoined before a single stem.[4]

[4] She gave me a nickel and you a dollar
[5] We were instructed in pre- and post-operative procedures

Not only does Japanese lack a uniform device for achieving what the universal coordinator in English achieves, but the closest analogs in Japanese to the English simple conjunction often introduce more information than we find associated with *and*.

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[4]The fact that the same structuring principle for coordinate conjunction works at all levels of the grammatical hierarchy in English made it natural for early generative grammarians to try to derive all instances of coordinate conjunction, by means of various processes of deletion and restructuring, from the coordination of full sentences.

In conjoined nominals, for example, we find in Japanese three different post-positions: *to*, *ya*, and *mo*. In the case where *mo* could be called a conjunction, rather than merely a particle meaning something like 'also', it combines with each of the nouns being conjoined, and corresponds, when the number of nouns is two, to English *both...and....* The conjunction *ya* is postposed to non-final nominals in a sequence and conveys the idea that the list composed by the sequence is incomplete. The conjunction *to* appears on the non-final nominals in the sequence, but may also appear on the final member, and is semantically neutral.

Totally unrelated devices are used for conjoining clauses. For example, the language has clause-final particles *ga* and *si*, appearing only after finite verbals, and several verb inflections. The inflections, *–te* and *–i*, are referred to in the terminological tradition of Bernard Bloch as gerund and infinitive, although there is little reason for choosing either of these terms. The so-called "infinitive" has the form of a final *i*-vowel after a consonant stem and zero otherwise. The gerund has the basic form *te* , and – in common with all *t*–initial inflectional suffixes – both induces and is subject to assimilatory morphophonemic processes connecting it to the end of the verbal stem.

There is an additional verbal suffix *–tari* whose presence indicates that the situation-types or event-types expressed in the clauses so conjoined are examples of kinds of situations or activities. Notice example [6].

[6] biiru o nondari tabako o suttari site...
beer OBJ drink(TARI) cigarettes OBJ smoke(TARI) doing...

"doing things like drinking beer and smoking cigarettes"

It is possible for there to be only one *tari*-marked clause, combining with a general predicate-making device rather than with a second clause. Thus, *–tari* shares with the noun-particle *ya*, something of its "et cetera" function, and with the noun-particle *mo* the ability to appear solo.

Perhaps the closest thing to a sentence-level conjunction in Japanese meaning simply 'and' is the clause-final particle *si*. It is, however, relatively rare: in the demonstration sample it occurs only once.

GA and BUT. The clause-final particle *ga*, much more common than *si*, is sometimes translatable as *and*, but more often as *but*; quite often, as it is used in the spoken language, it is best not translated at all. English *but*, of course, is a problem for everyone, since it is not clear whether it should be described as a coordinating or as a subordinating conjunction.

There are various uses of English *but*, many of which match uses of Japanese *ga*.

(1) There is one set of uses that we can speak of as argumentational, allowing explanations within the

kind of argumentation theory developed by Oswald Ducrot and his colleagues.

(2) There is a second or contrastive use which identifies two propositions as being in some ways in contrast with each other, but not necessarily differing in their contribution to an argument.

(3) In a third or "thwarted-expectation" use, the two propositions linked by *but* have the effect of contradicting some background assumption.

(4) There is a fourth - a scalar - use in which *but* connects two statements identifying values on a scale, asserting one and denying the other.

In its *argumentational* use, the clause or sentence that *but* is preposed to is the rhetorically more central proposition in the ongoing discourse. This is a situation where, rhetorically at least, the clause to which *but* is preposed is the "main" clause. A sentence of the form "A but B" contrasts two competing considerations in an argument, and it is the one introduced by *but* which wins out. (The two "voices" in the "argument" can exist within the same speaker.) Hence in the two sentences, [7] and [8], a continuation of the sort suggested by [9] fits [7] but not [8].

[7] I really want to go, but I can't afford to.
[8] I can't afford to go, but I really want to.

[9] So I'm not going to go.

In its *contrastive* use, seen in [10] and [11], we find *but* abutting two assertions that differ by some sort of antonymy relation.

[10] She likes chocolate, but I don't.
[11] The girls in the family are tall but the boys are short.

Here we are not invited to believe that one of these is more salient than the other.

In the *thwarted-expectation* use, there is a shared background assumption concerning an expectation-relation between two notions. English doesn't have a single word which expresses what I have in mind, so I will refer to this relationship with the made-up word *woggle*. I will express the background proposition for a *but* sentence (of the thwarted-expectation type) as

P woggles Q

To say that P woggles Q is to say that when P obtains, given certain background conditions, we are more ready to go along with Q than with not-Q. The woggling relationship can be of various types.

(1) Q can be a natural consequence or concomitant of P

Satisfying the relationship suggested in (1) is a sentence like [12]; set against such a background we can have the *but* sentence [13].

[12] I dropped it and it broke
[13] I dropped it but it didn't break.

(2) Q can be an intended consequence on the part of the agent of P

Expressing such a relation is a sentence like [14]; a corresponding *but* sentence would be [15].

[14] I looked for it and found it
[15] I looked for it but I couldn't find it.

(3) Q is a continuation of P

An expression of such a continuation is sentence [16]; a corresponding *but* sentence might be [17].

[16] We've been working on it and we're still working on it
[17] We worked on it for a while but then we quit.

(4) Q is behavior appropriate to a situation described as P.

Fitting such a pattern is a sentence like [18]; a corresponding *but* sentence might be [19].

[18] I see that you're busy so I won't bother you
[19] I know that you're busy, but I need to speak to you.

Extensions from this last type might be referred to as the "apologetic *but*."

In the *scalar contrast* use, a sentence with *but* involves points on a scale, indicating that the value being assigned to something is at some distance from zero but not further. The direction of mention can go either way, given slight intonational differences. See the examples in [20]:

[20a] It's warm but it's not hot.
[20b] He's big but he's not gigantic.
[20c] It's not hot but it *is* warm.
[20d] He's not gigantic, but he *is* big

Japanese *ga* seems to coincide with English *but* on all of these patterns, but there are a few cases where the two languages part company.

Rare in actual corpora (I suspect) but frequent in lists of examples proposed by linguists, we sometimes find sentences like [21]:

[21] It's not big but it's little

This, I am assured, is utterly impossible with Japanese *ga*.

[22] *kore wa ookiku nai GA tiisaii
this TOPIC big-not but small

Japanese, in turn, has a number of contexts welcoming *ga* where English *but* is inappropriate. Self-introductions allow *ga* (or its synonyms *kedo*, *keredomo*, *kedomo*):

[23] Tanaka desu GA Kyookosan irassyaimasu ka
Tanaka is but Kyoko is(honor.) QUES

"This is Tanaka [calling] - is Kyoko in?"

This may be an extension of an "apologetic" use of *ga*, but in this case the reason for apologizing is the self–presentation of the speaker.

English allows the apologetic *but* to follow a politeness imperative

[24] Excuse me, but are you Harriet Smedlap?

Since Japanese *ga* must be preceded by a finite verbal, occurrence with imperatives is not permitted. Japanese also has other uses of *ga* which we haven't pinned down yet, as illustrated, for example, by a sentence like [25].

[25] konban paatii ga arimasu GA, ikimasyoo ka
this-evening party SBJ be but, (we)go QUES

"There's a party tonight - should we go?"

English doesn't readily allow the paraphrase [26]:

[26] *There's a party tonight, but do you want to go?

As noted, *si* occurs only once in the demonstration sample, *ga* only four times. It should be pointed out that a particle that carries the meaning of "but" very commonly in the spoken language (*keredomo* and its abbreviations, *kedo* and *kedomo*) doesn't appear in our corpus at all.

The lone example with *si*, giving two parallel facts about gases, is the following sentence, in which we are told two typical properties of gases. (For the corpus examples the numbers prefixed by "Rika–" represent the sentence numbers in our record.)

Rika–411:

kitai wa
gas TOPIC

SI: te de tukam–e–nai SI,
hand by grasp-can-not SI

FINAL: me ni mi–e–nai baai ga ooi.
eye in see-can-not situation SBJ numerous

"Gases cannot be grasped and in many cases cannot be seen."

A corpus example with *ga* is the following:

Rika–94:

(zikken 1 de sirabeta yoo ni, bussitu ga zyootaihenka suru toki ni wa,)
(as shown in experiment 1, when the material underwent a state change...)

GA: taiseki wa kawat–ta GA,
volume TOPIC change–past BUT

FINAL: omosa wa henka si–nakat–ta.
weight TOPIC change do-not-past

"the volume changed but the weight did not change"

For this sentence the interpretation could be either that a contrast is shown between volume and weight (the volume changes but the weight doesn't), or that the stability of the weight in the face of a change in volume violates some normal expectation. That is, the relationship could be one of the contrastive or of the thwarted–expectation sort – or perhaps both.

Another *ga* example from the corpus is

Rika–303:

TE: sutiiruuuru wa moe–te
steel wool TOPIC burn–TE

GA: "hai" no yoo ni naru GA,
ash GEN way in become BUT

FINAL: omosa wa hueru.
weight TOPIC increase

"when steel wool burns it turns into an ash-like substance, but its weight increases"

Here the interpretation undoubtedly is that we generally think of ashes as light, and it is against that expectation that we learn that the ash-like residue of burned steel wool is heavier than the original substance.

Our text contained numerous sentences that would have called for *but* in English translation, but for which there was no lexical or grammatical signal of the contrast. In other words, there were many more cases where as analysts we sensed some sort of contrast or expectation–contradiction but where the grammar of the text sentence failed to reflect it.

The interpretations of clause-connective functions of the gerund and infinitival endings (*–te* and *–i*) will be discussed in connection with the demonstration corpus, below. Adjectives, the copula, and negative verbs have various combining forms which I will ignore here.

Conditionals. A second well-studied area in which Japanese and English clause connectives are known to be strikingly different is that of conditional sentences. A student of Japanese has to learn quite a few ways of saying what in English can be said with constructions marked by the function-word *if*, and it takes a long time to get the details right. For example, I remember being surprised to learn that I couldn't translate the *if*–clauses of both "If you drink this you'll get better" [27] and "If you drink this you'll die" [28] with the suffix *–(r)eba* without communicating an unintended message.

[27] kore o nom–eba naorimasu yo
this OBJ drink (R)EBA improve EMPH

[28] kore o nom–eba sinimasu yo
this OBJ drink (R)EBA die EMPH

Some informants – but not all – could not interpret sentence [28] as a warning, but only as a recommendation for someone who wanted to commit suicide. Another device for signalling conditionality in Japanese, with the *–tara* suffix, wasn't so limited. This contrast suggested that the semantic relationship between the clauses marked with *nomeba* was of the Means–End sort, while the one with *nondara* expressed an ordinary Contingency relationship. (The generalization is not supported in all dialects.)

Devices for expressing conditionality in Japanese include such particles as *nara*, *naraba*, and *to*, the noun *toki* (time), and such inflections as *–tara*, *–(r)eba*, and *–temo*. In addition, there is a special function word *mosi* which can appear at the beginning of some protases. Except for *–(r)eba*, most of these have functions that are quite distinct from expression of pure conditional meanings, and one of the main goals of our project is to figure out the difference between *–tara* and *to* in our corpus. (The results of this part of our inquiry, unfortunately, are not yet ready.)

There are some interesting discrepancies between the conditional systems of the two languages, and I'd like to mention just a few of them.

The English tense and auxiliary system is called on to signal temporal and epistemic-stance differences, suggested by the following examples. With non-stative verbals we have these possibilities:

[29] if you ask him, he'll do it
(future hypothetical)

[30] if you asked him, he'd do it
(future contrary-to-expectation)

[31] if you had asked him, he would have done it
(past counterfactual)

With statives we have these possibilities:

[32] if he's here, he'll help you
(present hypothetical)

[33] if he were here, he'd help you
(present counterfactual)

[34] if he had been here, he would have helped you
(past counterfactual)

The differences that are grammaticized in such clear ways in English are signalled only with pragmatic particles on the consequent clause in Japanese: there is no difference in the antecedents, there is no regular way of signalling temporal differences, and the epistemic stance differences are indicated with the choice of particular pragmatic inflections and particles. For example, the *–tara*-phrase *Kyooto ni ittara* can be translated "when (I, you, he, etc.) go to Kyoto", "if I go to Kyoto", "if I had gone to Kyoto". The temporal and epistemic-stance differences are signalled by intonation, pragmatic particles, and inflections with pragmatic forces.

Thus,

[35] Kyooto ni it–tara, Tanakasan ni a–imas–u
Kyoto to go–TARA, Tanaka-honorific in meet-polite–nonpast

"When I go to Kyoto, I'll meet Tanaka."

[36] Kyooto ni it–tara, Tanakasan ni a–e–ru desyoo
Kyoto to go–TARA, Tanaka–honorific in meet–can–nonpast polite–modal

"If I go to Kyoto, I'll be able to meet Tanaka"

[37] Kyooto ni it–tara, Tanakasan ni at–ta noni
Kyoto–to–go–TARA, Tanaka–honorific in meet–past although

"If I had gone to Kyoto I would have met Tanaka"

We see from these examples (1) that the antecedent is unchanging across epistemic stance and tense differences, and (2) that the signalling of tense and epistemic stance in the consequent is done by "pragmatic" means, suggesting (correctly) the defeasibility of the meanings given in the proposed translations.

A striking feature of the Japanese *–tara*-conditional is its exclusivity. In English we can freely say [38]. indicating that we'll have the picnic no matter what happens.

> [38] If the sun shines we'll have the picnic, to be sure, but if it rains we'll still have the picnic.

The *–tara* conditional cannot, in this way, be used to cover all alternatives. Translating the question "Will we have the picnic if it rains?" as [39],

> [39] ame ga huttara pikunikki ni ikimasu ka
> rain SBJ fall(tara) picnic to go QUES
>
> "Will we have the picnic if it rains?"

would suggest (quite paradoxically) that the speaker assumes that the picnic will not take place if the weather is good. To avoid that interpretation Japanese requires [40].

> [40] ame ga huttemo pikunikku ni ikimasu ka
> rain SBJ fall–TEMO picnic to go QUES
>
> "Will we have the picnic (even) if it rains?"

The property of English that we're concerned with here is its ability to represent the "unconditional" conditional with the same marker as the "true" conditional. The relationship can be expressed with *even if*, but that is not necessary.

This may suggest that the Japanese *–temo* ending corresponds to English "even if", but, as Seiko Yamaguchi Fujii has pointed out in several papers[5], this is not necessarily the case. There's an important difference between English *even if* and Japanese *–temo* related to the fact that English requires the contradicted background assumption to have a scalar value and Japanese does not. In English you can say something like [41].

> [41] Even if you set fire to his hair he won't get angry with you.

The equivalent in Japanese, with *–temo*, is possible of course. It works in English because having your hair ignited may be seen as an extreme provocation, and it

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[5]Fujii, Seiko Yamaguchi (1989a), "Counterfactual concessive conditionals in Japanese," in Hajime Hoji (ed.), *Proceedings of the First Japanese/Korean Linguistics Conference*, pp. 353–367; (1989b), "Concessive conditionals in Japanese: a pragmatic analysis of the S1–temo S2 construction.: *Proceedings of the 15th Annual Meeting of the Berkeley Linguistics Society* pp. 291–302; (1990), "Japanese concessive conditionals: their functions, idiomaticity and relations with modality," paper presented at the *Third International Pragmatics Conference* (Barcelona);

works in Japanese because such an experience would not ordinarily result in such peaceful behavior. But Japanese also allows things like [42]:

> [42] Tanakasan ni attemo, watasi no koto o iwanaide kudasai
> Tanaka in meet–TEMO, I GEN thing OBJ speak-not(te) give(pol.imp.)
>
> "If you meet Tanaka, please don't mention me."

Since it is natural (if this is the right way to think about it) to be unconstrained in what one talks about when meeting a friend, Japanese requires the *–temo* ending to indicate a departure from that expectation. Expression with *–tara* in the intended meaning is not possible. A translation of [42] with *even if* in English would require the belief that the possibility of meeting Tanaka is quite remote, and that he's the last person in whose presence one could ordinarily expect you to be silent.

There were relatively few true conditional sentences in our corpus, though there were, as could be expected, a large number of "generic" conditionals - conditionals that could be expressed with "when" or "whenever" as well as with "if": "if/whenever you raise wax to a high temperature it burns", etc.

Processing the Text

In traditional studies of Japanese clause connectives, the list of usage principles is long and complicated. If we just look at Susumu Kuno's discussions[6] of the difference between *–tara* and *–to*, we find lots of things to keep track of. Both can be used to mean "if", but *–tara* requires the belief that the event signalled in the main clause followed the event in the antecedent, *to* does not allow the main clause to indicate something that the individual represented by the sentence's subject performs deliberately in response to the antecedent event, and so on. My colleagues and I thought that we would try to find out for ourselves just what is going on with these connectives, borrowing ideas from such discussions, but more or less starting from scratch.

In processing the clause-sequences in the text we found it useful to prepare a five–column display, representing, for each data–set, (1) the sentence number containing the sequence, (2) the connective, (3) a segment of the text containing the connective in question, (4) a formula capturing (a) the kinds of clauses, in respect to the categories act, event, state, experience, etc., (b) polarity (positive or negative), and (c) the speech act force of the whole (assertive, directive, question, etc.), and (5) the logical or semantic nature of the connection we felt obtained between the states of affairs represented by the linked clauses.

The connectives we found in the corpus are listed in Table 1, along with the number of tokens in the demonstration sample.

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[6]Kuno, Susumu (1973), *The Structure of the Japanese Language*, Cambridge, MA, MIT Press

connective	token count	gloss
ato	1	after
baai	4	case
ga	4	but
hodo	4	degree
i	82	??
mae	1	before
mama	1	state
nagara	4	while
nara	1	if
naraba	1	if
niwa	8	in order
node	6	because
noni	2	although
reba	9	if
si	1	and
tame	5	reason
tara	29	if/when
tari	10	and
te	92	??
tokoro	2	occasion
temo	12	even if
to	61	if/when
toki	33	time
tokoro	2	place/occasion
u	8	??
yooni	19	"as"
yoonisite	19	"as"

Table 1

We have distinguished various types of clause meanings of the sort suggested by the notion "situation type". Among these are physical act, physical event, physical state, cognitive act, cognitive event, cognitive state. Distinguishing physical acts and physical events with the symbols "a" and "e" we can illustrate combinations of various type combinations as follows:

a : a	I opened the window : Harry closed it
a : e	I opened the window : the papers blew out
e : e	the door opened : the papers blew out
e : a	the door opened : Harry closed it

The formulas representing situation type also indicated the polarity of each sentence, the tense where relevant, and the speech act force of the whole. Thus, for a sentence like [43a] we show the "type" information as (43b).

[43a] If the rain doesn't stop, put up a tent
[43b] **~e : a!**

in which the first symbol indicates that the if-clause represents a "negative event," the second clause represents an imperative (and hence an act).

The trickiest and most volatile part of the analysis concerned the description of the kinds of relations we saw between the events or states of affairs indicated by the two clauses. We tried to do this independently of whatever intuitions we had about whether or not the connective in question actually signalled the relationship.[7]

In the following paragraphs I give a catalogue of clause–relation types that figured in our most recent pass through the data. Identifying the two clauses in a two–clause sequence as A (subordinate clause) and B (main clause), we describe the relationships as relationships between A and B.

Temporal order: Precedence and Postcedence. Two such relationships involved simple temporal order, lacking further specification. A BEFORE B is the iconic order, A AFTER B is the counter-iconic order.

Precondition. Separated from simple temporal order were two sub–types of the sort I called Precondition. PRECO-DO was used when A was an act which was a precondition to the act represented by B. This could be illustrated by such a sequence as "fill the flask with water and heat it". The first act is a precondition to the second. PRECO-WAIT was used when A was an event which was a precondition to the act represented by B, and the understanding is that the actor "waited" until A occurred before doing B. This relationship can be illustrated with "When the substance becomes cool replace the lid."

Means/End Relationships. There was a pair of relations called MEANS and END, the first indicating that an act of type A was a means to accomplishing B as the end; the second indicating that an act of type A was an end which could be accomplished by doing B. The former could be represented by a sentence expressing something like "adjust the gas-flow knob to change the color of the flame"; the latter by a sentence expressing "to change the color of the flame, adjust the gas flow knob."

Cause. CAUSE was the name given to the relation according to which the event in A results in the event in B. This would be the relationship described of a sentence reporting an instance of something being heated and melting. The first clause could either represent an act or an event; the second is an event.

Example. AS is the name given to the first clause providing a model of the event identified in the second clause. ("As we have seen in experiment #3", ...)

Explanation EXPLANATION is the name given when the first clause offers an explanation of the state of affairs indicated in the second clause. ("Since it

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7 We weren't actually working from scratch, of course: we freely stole whatever ideas we could from the tradition of research associated with such names as Sandra Thompson, Robert Longacre, Michael Halliday, Kathleen Callow, Joseph Grimes, and others.

was raining we all got wet.") (There is a construction which allows the explanation to appear second, but since it involves a special "cleft sentence construction", it doesn't fit the grammatical type being considered in this paper.)

Conjunction. CONJUNCT is the name given when we believed that the two clauses were merely conjoined, were of equal status.

Contrast. CONTRAST is the name given a situation in which two parallel assertions were being made, differing from each other by an antonymous relationship at some level – polarity, semantic opposition, alterativity, argumentational direction, etc.

Nugation. NUGATION is the (quite non–traditional) name given to the relation that obtains when the first clause represents something which works against the event in the second clause but is unavailing. The paraphrase would be something like "in spite of A, B".

And there were numerous others, some of which are seen in the tables and analyses which follow.

The first few lines of the display we constructed are given as Table 2.

2	temo	nessitemo	a: ~e–	Nugation
8	yoonisite (ru)	kazasuyoonisite	a : a!	Manner
14n.1	tokiwa	siraberutokiwa	a : a!	Occasion
14n.2	yooni	sinaiyooni	~e : a!	End
14n.3	tekara	hietekara	e : a!	Preco: wait

Table 2

The second clause, if final, could be an imperative, a non–past assertion, or a past–tense assertion. In such cases, the symbol for the clause was marked "!", "--", or "+" respectively. Abbreviated glosses of the connected clauses represented by these examples might be given as follows:

2 even when you heat it, it doesn't ignite (Nugation)
8 heat it by wafting it over the flame (Manner)
14n.1 when investigating x, do y (Occasion)
14n.2 in order for x not to happen, do y (end)
14n.3 after it cools, do y (Preco: wait)

Operating on the full table of which Table 2 is a segment, we were able to sort the entire list by the name of the semantic connection. Then, within each of these, we were able to sort by the connective, so that all of the connectives used to express a particular semantic relation were grouped together. Sample lines from the resulting sortings are given as Tables 3 and 4.

From the Connection Sort

94.3	ga	kawatta ga	e : ~e+	Contr
303.2	ga	hai no yoo ni naru ga	e : e–	Contr
390n.2	ga	musyoku de aru ga	e : e–	Contr
207n.1	ga	seesyokudearu ga	s : s–	Contr
639.2	i	wa ni nari	e : e–	Contr
635	i	gooseesuru to ii	s : s–	Contr
642	i	bunkai to ii	s : s–	Contr

Table 3

Then we were also able to sort the entire list by the connective, again supporting each group of connective according to the semantic functions.

From the Connective Sort

643.1	niwa	bunkaisuru niwa	a : a	End
157	niwa	motomeru niwa	a : a?	End
468	niwa	hassseisaseru niwa	a : a?	End
173	niwa	mitudo o motomeru niwa	a : a–	End
412.2	niwa	(tari)suru niwa	a : a–	End
91	niwa	arawasu niwa	a : s?	End
476	niwa	atumeru niwa	a : X?	End
105	niwa	kubetu suru niwa	c : a?	End

Table 4

Examples of clause sequences, and their interpretations, that provided the basis of such classifications are given in the next pages.

Means: In the following, the TE clause identifies by Means of accomplishing the event in the FINAL clause.

Rika–48:

TE: 4. kuukityoosetunezi o yurumete
air-regulator-knob OBJ loosen(te)

FINAL: aoi honoo ni suru.
blue flame in do

"get a blue flame by adjusting the air-regulating knob"

Nugation. In Rika–2 the TEMO clause indicates a state of affairs which, in spite of general tendencies, yields the negative result represented in the FINAL clause.

Rika–2:

TEMO: kuukityuu de tetu no harigane o nessitemo,
air in iron GEN wire OBJ burn(temo)

FINAL: moedasu koto wa nai.
ignite thing TOPIC not-be

"if you heat iron wire in the air, it will not burn"

Preco: do. In the next sentence the TE clause gives instructions which must precede the instructions given in the FINAL clause.

Rika–47:

3. (matti ni hi o tukete kara)
(after igniting a match)

TE: gasutyoosetunezi o yurumete
gas-regulator-knob OBJ loosen(te)

FINAL: hi o tukeru.
fire OBJ ignite

"open the gas regulator and ignite the gas"

Preco: wait. In Rika–214 the TARA clause identifies a state of affairs that must be satisfied before the instructions given in the I clause are to be carried out.

Rika–214:

TARA: 3. hi ga kietara
fire SBJ go-out(tara)

I: sorezore no bin o yoku huri,
various GEN bottle OBJ well shake(i)

FINAL: nisankatanso ga dekita ka doo ka o siraberu.
carbondioxide SBJ formed QUES how QUES OBJ investigate

"when the fire goes out, shake the various bottles and determine whether or not carbon dioxide has formed"

Cause. In Rika–286 the activity of heating the steel wool (mentioned in the TE clause) produces that state of affairs in which the steel wool becomes black (indicated in the ATO clause).

Rika–286:

TE: 2. sutiiruuuru B o sibaraku nessite
steel-wool B OBJ a-while heat(te)

ATO: B ga kuroku natta ato,
B SBJ black became after

TEMO: A o nessite mo,
A OBJ heat(te) even

FINAL: A wa henka si-nai.
A TOPIC change do-not

"on heating steel-wool "B" for a while it will turn black; (after that) even if you heat "A" it will undergo no changes"

Way. The reason for classifying the relationship in the next sentence as "Way" is that releasing the pinchcock is not, strictly speaking, the "Means" of doing the experiment; rather it constitutes the experiment. This is indicated with the translation using "try".

Rika–30:

TE: 5. pintikokku o hazusite
pinchcock OBJ release(te)

FINAL: zikken site miru.
experiment do-see

"try releasing the pinchcock"

In examining the relationships revealed in these records, a certain number of generalizations could be made. For example, the connective *hodo* always expressed Degree, *nagara* always expressed Simultaneity, *yooni* always expressed Example, and *niwa* always expressed End. In addition to these fairly straightforward relationships, it seems clear that (1) the connective *to* most frequently expresses Cause ("heat the wax, it burns"), (2) the connective *–tara* frequently expressed Preco:wait when the sentence had imperative force. For many of the marker–types, the relationship between the form of the marker and the semantic relationships we considered were at the very least complex and many–many.

We found it particularly striking that no links could be found between the inflections *–i* and *–te* and their semantic functions. The insights we finally attained on the functions of *–i* and *–te* are treated in the next section.

–I and –TE

It is generally assumed by students of Japanese that the inflections *~i* and *–te* are semantically indistinguishable, both indicating verbal or clausal coordination. Their functions being the same, they are opposed with each other only for stylistic reasons, or so the argument goes. By studying the examples in our corpus,

however, we became convinced that these two inflections are indeed different, but that the differences are at a subtler – and more "structural" – level.

When we examined simple two-clause sentences with *–te* or *–i* the general impression we got was that, in accordance with the common view, the two endings were interchangeable. In some cases we found that the *te*-form was judged to be "more colloquial," or it "sounded more childish", but in the overwhelming majority of cases the two could replace each other without any change in how the sentences were understood. It was easy to believe that the two were merely registral variants of each other.

But when we moved on to sentences with three or more clauses, especially those containing both *–te* and *–i*, certain subtle differences appeared, differences on the level of the hierarchical structure of the sentence, not on the level of easily seen semantic relations.

Our intuition was that *–i* united clauses that were presented in parallel (including cases of contrast), without requiring any understanding that there was any other special connection between them, but that *–te* united one clause to another just when the former could be seen as representing an event or state of affairs that was presented as a part of the same event or state of affairs as the latter.

The following is an example of

Clause[I] + Clause[TE] + Clause[FINAL].

Rika–306: **(i te)**

I: 18 seeki no koohan, ooku no kagakusya wa, "moeru bussitu no naka ni wa hurozisuton (`moeru moto' to yuu imi) to yuu mono ga hukumarete ori,
18 century GEN latter–half, many GEN scientists TOP, "burning substance" GEN inside in TOP phlogiston ('burning source' means) called thing SBJ included is(I)

TE: 'moeru' to wa, hurozisuton ga nukedasite,
'burn QUOT TOP, phlogiston SBJ escape(TE)

FINAL: ato ni nukegara (hai) ga nokoru henka de aru" to kangaete ita.
afterward in slough (ash) SBJ remain change is" QUOT thinking were

"In the latter half of the 18th century, many scientists believed that inside a burning substance was something called "phlogiston", and that when the thing burned, phlogiston escaped, leaving ashes behind as its slough."

In this sentence, the I–clause describes the main content of the belief, but the two clauses joined by TE show the causal and constitutive connection between the phlogiston's escaping and the ashes being left behind.

The following two sentences show the structure

Clause[TE] + Clause[I} + Clause[FINAL]

Rika–97: **(te i)**

TE: tetu, aruminiumu, doo nado no kinzoku o te ni totte,
iron, aluminum, copper etc. GEN metal OBJ hand in take[TE]

I: tugi no yoona koto o sirabe,
next GEN manner thing OBJ investigate

FINAL: kizuita koto o kiroku siyoo.
noticed thing OBJ record make[HORT]

"Taking such metals as iron, aluminum and copper, investigate the following properties and record your findings."

Taking the metals and investigating them is the unified act (joined by TE) which is to yield the observations which need to be recorded. The investigation and the recording are united by I.

Rika–339: **(te i)**

kore wa,
this TOP,

TE: hutatu no hunmatu ga hatarakiatte
two GEN powder SBJ interacting

I: henka ga okori,
change SBJ occur

FINAL: aru kitai ga hassee sita tame dearu.
a–certain gas SBJ generation did cause is

"This is because, a change occurring because of the two powders interacting, a particular gas got generated."

The change took place as the powders were interacting (united by TE); this change resulted in the generation of the gas.

Having convinced ourselves that *–te* is appropriate when the two clauses so connected represent at some level a single event, we were then able to return to our simple two-clause examples to see if it was really true that in these cases the two morphemes were truly intersubstitutable. We found several sentences in which they clearly were not.

Rika–25:

I: yosoo o hanasia–i,
prediction OBJ talk–over[I]

FINAL: kokku o hazusite–miru.
pinchcock OBJ remove–try

"Discuss your predictions, then remove the pinchcock."

In sentence 25 there is no possibility of considering the conversation about the students' predictions and the act of removing the pinchcock as a single event.

Rika–39:

I: tenka wa matti de okonai,
ignition TOP match with achieve

FINAL: huta wa kanarazu soba ni oku
lid TOP definitely side in put

"Light it with a match, being sure that you have set the lid aside."

Here there are important reasons why the lid should be set aside before the fire is lighted, but the two can only be seen as separate acts.

Rika–48:

TE: 4. kuukityoosetunezi o yurumete
air–regulator–screw OBJ loosen[te]

FINAL: aoi honoo ni suru
blue flame in do

"4. Loosen the air regulator screw in such a way as to produce a blue flame."

In Rika–48, however, the producing of the blue flame is achieved precisely by the act of loosening the air regulator screw: the one act "constitutes" the other. This time there is no possibility of viewing the two as separate events.

Rika–53:

TE: 1. syooryoo no etanooru o porietiren no hukuro ni ire–te
small–amount GEN ethanol OBJ polyethylene GEN bag in place–TE

FINAL: kuti o sibaru.
mouth OBJ tie

"1. Place a small amount of ethanol in the polyethylene bag and tie the mouth of the bag tight."

Rika–54:

TE: 2. hukuro o batto ni ire–te,
bag OBJ pan in place–TE

FINAL: ue kara nettoo o kakeru.
above from boiling–water OBJ pour

"2. Place the bag in the pan and pour boiling water over it."

The preceding two sentences describe complex acts in which the second part would have no point if it were not for the first part: the reason for tying the mouth of the bag is to make sure that polyethylene gas that has been put into it does not escape (Rika–53); the point of pouring boiling water into the pan is to see its effect on the bag of polyethylene gas that has been put into it (Rika–54). In each case these acts are unified.

It appears, then, that while the *–i* suffix coordinates events or acts quite neutrally, allowing the semantic relationship between them to range from contrast to parallelism to coincidence, the *–te* suffix has the function of suggesting that the two events or acts combine to form a single whole. In a great many cases, of course, the decision to express a relationship between two situations in one way or another is a matter of choice and perspective, but it appears (1) that in cases where two events are so tightly connected that one is viewed as constituting the other, the *–te* connection is required, (2) that when two events differ enough so that one is (say) a precaution to be kept in mind while performing the other, the *–i* connection is required. The traditional distinction between "subordination" and "coordination" is suggested in contrasting *–te* and *–i*, but the former notion is clear only when it is realized as "embedding", and an embedding analysis is seldom possible for *–te*.

In Closing

The task of surveying all of the complex clauses in even a medium–sized corpus (and it should be emphasized that our team has not yet confronted a truly large corpus) is a vast one. When two clauses are juxtaposed, whether or not their linkage is grammatically signalled, the number of possible reasons for their co–presentation is limitless; grammatical signals of clause linkage, when they are present, might be polyfunctional; native speakers interpreting a piece of text do not have reliable intuitions about the contribution of clause markers to their envisionment of the text's meaning; and clause–connection markers may only "reflect" independently knowable relationships in the text, instead of "creating" them. In short, the task we have set for ourselves is daunting, and one can perhaps hope for only partial success.

That said, it remains true that (1) important differences in meaning can be expressed in just those small ways in which complex clauses are put together, (2) there are numerous uncontroversial cases, and (3) the semantics and rhetoric of clausal relations comprise one of the truly complex and troublesome areas of translation theory and linguistic typology.

The job is an important one, and from my point of view, the best way to attack it at the present time is through extensive and intensive explorations of instances of usage, in contexts in which speakers' or authors' purposes are relatively transparent, on the part of (or with the patient participation of) uncommonly sensitive native speakers, using a large corpus, and keeping a cross–linguistic perspective in mind.

INVITED LECTURE

Linguistic Information Processing using the Functional Grammar Processor

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Introduction

In a paper I presented at the 13th LACUS Forum I argued that Richard Hudson's Word Grammar falls short of realizing a plausible theory of language structure because it neglects the meaning potential of lexicogrammatical units larger than the word. Without the clause-as-utterance, WG cannot succeed in providing an adequate framework for the description of text-as-"intersubjective event" (Halliday, 1981:42).

The clause as meaningful unit is the most basic lexicogrammatical unit in Halliday's functional grammar. The text is also a semantic unit but at a higher level in the hierarchy. Both clause and text belong to that large collection of vertical or semiotic units described by Sydney Lamb as "links between communicative functions or meanings and the means of expressing them"(1985:16). "In order to provide insights into the meaning and effectiveness of a text," states Halliday, "a discourse grammar needs to be functional and semantic in its orientation, with the grammatical categories explained as the realization of semantic patterns" (1985:xvii). Functional grammar provides just that orientation.

Halliday describes a clause as a complex realization of three semantic functions: ideational, interpersonal, and textual. These three functional-semantic components each contribute in their own way to the form of the clause. The Functional Grammar Processor (FGP) is a tool to assist in the analysis of texts following M.A.K. Halliday's approach outlined in his Introduction to Functional Grammar in terms of theme-rheme structure, mood-residue and transitivity. This text differs from Halliday's previous work in that the emphasis is on the structural rather than the systemic portion of a description of English. The program interfaces between user and text taking one through the process of clause analysis leading to the construction of a prolog-based database containing information about the functional analysis of a particular text.

Clause as basic lexicogrammatical unit

The starting point for analyzing the text is the clause. Clauses make it possible to create text, explains Halliday, because a clause "has itself evolved by analogy with the text as model and can thus represent the meanings of a text in a rich variety of different ways" (1981:44). A clause is related to text along two axes (1981:39), one being composition - clause as constituent of the text, the other being realization - clause as instantiation of the text. Halliday describes a clause as "a text in microcosm, a 'universe of discourse' of its own in which the semiotic properties of a text reappear on a miniature scale." The three functional-semantic components - ideational, interpersonal, and textual - each contribute in their own way to the form of the clause.

The clause is meaningful in three senses: as message, as a means of representing patterns of experience, and as a form of exchange (1985:38, 68, 101). The clause as message is describable in terms of its thematic structure. Given a text, "the thematic organization of the clauses (and clause complexes where relevant) expresses, and so reveals, the method of development of the text... by analyzing the thematic structure of a text clause by clause, we can gain insight into its texture and understand how the writer made clear to us the nature of his underlying concerns" (Halliday, 1985: 67).

The clause as representation of the processes of doing, happening, feeling, being is organized into three components or elements each of which is typically realized by members of a particular word class: "a pattern," Halliday suggests, "that in some form or other is probably universal among human languages" (1985:102; Table 5(1) from the same page follows):

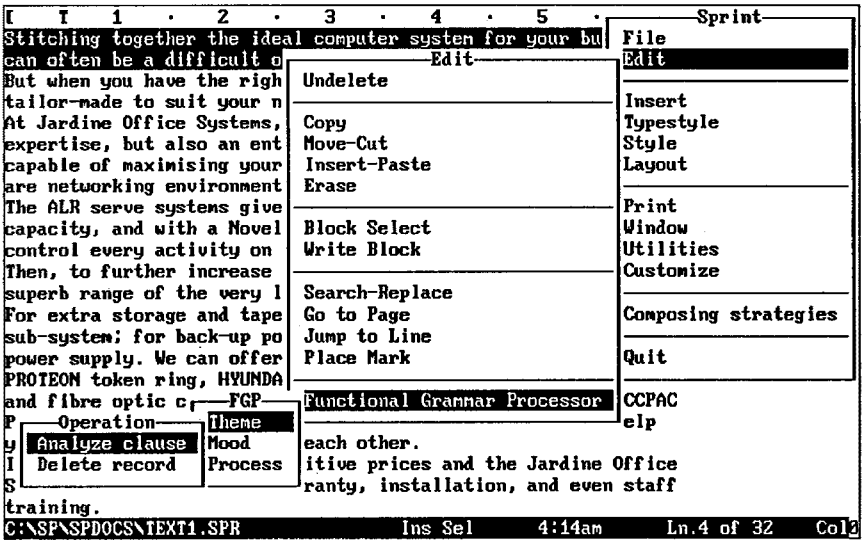
type of elements:	**typically realized by:**
(i) process	verbal group
(ii) participant	nominal group
(iii) circumstance	adverbial group or prepositional phrase

Mood and residue are two constituents of the clause as exchange. The Mood elements consists of Subject plus Finite, the Residue consists of Predicator, Complement and Adjunct. While Halliday recognizes that the Mood element has little significance beyond the immediate sequence of clauses in which it occurs, he nevertheless

points out that "the ongoing selection of Subjects by a speaker or writer does give a characteristic flavor to a piece of discourse" (1985:98).

The Functional Grammar Processor

The Functional Grammar Processor runs on any IBM PC AT compatible in either monochrome or color. The Functional Grammar (FG) Processor is fully integrated with Borland's Sprint, a popular word processing package. The text to be analyzed is called up first in Sprint. The user then highlights the clause to be analyzed using either the keyboard or mouse and selects from the FGP pop-up menu to do either Theme-Rheme, Mood-Residue or Transitivity analysis. (See Displays 1 and 2.)



Display 1 - FGP pop-up menu from Sprint Edit menu

```
[ T 1 . 2 . 3 . 4 .                                  Mouse
Stitching together the ideal computer system for   Copy
can often be a difficult operation.                Move-Cut
But when you have the right connections, everyth   Paste
tailor-made to suit your needs.                    Erase
At Jardine Office Systems, we not only offer you
expertise, but also an entire range of software    Write Block
capable of maximising your output, in any multiv   Select                BLOCK
are networking environment.                        Typestyle
The ALR serve systems give exceptional speed and   Index Word
capacity, and with a Novell operating system, yo
control every activity on the network.   FGP      Functional Grammar Processor
Then, to further increa   Operation   Theme
superb range of the ver   Analyze clause   Mood   Cancel
For extra storage and t   Delete record   Process
sub-system; for back-up                          ninterruptable
power supply. We can offer you the Canon LBP-811 server printer,
PROTEON token ring, HYUNDAI terminal workstations, BICC coaxial
and fibre optic cabling, COMPUTER ASSOCIATES SUPERCALC5, ACCPAC
PLUS, and CSPI BABY/36, in fact, virtually everything to help
your computers connect with each other.
It's all at extremely competitive prices and the Jardine Office
Systems service includes warranty, installation, and even staff
training.
C:\SP\SPDOCS\TEXT1.SPR          Ins Sel    4:14am    Ln.4 of 32    Col2
```

Display 2 - FGP pop-up menu from Sprint mouse menu

The FG Processor, written in Turbo Prolog, next appears on the screen. The user enters his analysis into the appropriate fields guided by an on-line help system. Displays 3 and 4 show the mood-residue analysis for the first clause from the TEXT1 document: "Stitching together the ideal computer system for your business can often be a difficult operation." Displays 5 through 8 illustrate transitivity analysis on the same clause. In Display 6, the on-line help is demonstrated. The user is aware that the subject - 'Stitching together the ideal computer system for your business' is a participant in a relational process - 'can often be', but (s)he is evidently not sure what type - whether intensive, circumstantial, or possessive - so while still in the 'Type' menu, (s)he presses the HELP key (which is F1 as indicated in the status line at the bottom of the screen) and up pops the HELP information about the three types of relational process in English. Displays 8 and 9 exhibit theme-rheme analysis.

```
[ Mood-Residue Structure ]
Clause  Stitching together the ideal computer system for your business
        can often be a difficult operation.
Outside
Interpersonal                    Textual
Mood Structure
Subject
Finite                           Mood Adjunct
Residue Structure
Predicator                       Complement
Circumstantial Adjunct
Analysis

Reference No.  1   Alt          Document C:\SP\SPDOCS\TEXT1
[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F9]-Menu [F10]-Save
```

Display 3 - FGP display for Mood-Residue Structure

```
[ Mood-Residue Structure ]
Clause
Outside
Interpersonal                    Textual
Mood Structure
Subject  Stitching together the ideal computer system for your business
Finite   can                     Mood Adjunct often
Residue Structure
Predicator  be                   Complement a difficult operation.
Circumstantial Adjunct
Analysis
mood(subject(Stitching together the ideal computer system for your
business),finite(can),mood_adj(often)),residue(pred(be),complement(a
difficult operation.))
Reference No.  1   Alt          Document C:\SP\SPDOCS\TEXT1
[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F9]-Menu [F10]-Save
```

Display 4 - Mood-Residue Structure analysis completed

```
[ Transitivity Structure ]

Clause Stitching together the ideal computer system for your business
       can often be a difficult operation.

Interpersonal                    Textual

Process

Participant

Circumstance

Analysis

Reference No.  1  Alt        Document C:\SP\SPDOCS\TEXT1

[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F9]-Menu [F10]-Save
```

Display 5 - FGP display for Transitivity Structure

```
[ Transitivity Structure ]

Clause can often be a difficult operation.

Interpersonal                    Textual

Process

HELP [ Type ] HELP
There are three types of relational
process in English:
(i)   intensive - the relationship is
one of sameness; the one 'is' the other.
(ii)  circumstantial - the relationship
between the two terms is one of time,
place, manner, cause, accompaniment,
matter or role.
(iii) possessive - the relationship
between the two terms is one of owner-
ship: one entity possesses the other.
(From Halliday, 1985:114,119,121)

am for your b
[ Type ]
Intensive
Circumstantial
Possessive

[ Process ]
A. Material
B. Mental
   Behavioural
   Relational
   Verbal
   Existential

nt C:\SP\SPDOCS\TEXT1

[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F9]-Menu [F10]-Save
```

Display 6 - Context sensitive HELP information

```
[ Transitivity Structure ]
Clause  can often be a difficult operation.
Interpersonal                    Textual
Process
Participant                                          [ Process ]
Stitching together the ideal computer system for your b   A. Material
                                                          B. Mental
Circumstan  [ Attrib ]   [ Mode ]   [ Type ]              Behavioural
            Carrier      Attributive  Intensive           Relational
            Attribute    Identifying  Circumstantial      Verbal
Analysis                              Possessive          Existential
Reference No.  1  Alt        Document C:\SP\SPDOCS\TEXT1
[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F9]-Menu [F10]-Save
```

Display 7 - Participant as carrier

```
[ Transitivity Structure ]
Clause
Interpersonal                    Textual
Process
can often be
Participant
a difficult operation.
Circumstance
Analysis
prtpnt(carrier(Stitching together the ideal computer system for your
business)),proc(intensive(can often be)),prtpnt(attrib(a difficult
operation.))
Reference No.  1  Alt        Document C:\SP\SPDOCS\TEXT1
[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F9]-Menu [F10]-Save
```

Display 8 - Transitivity Structure analysis completed

```
[ Theme-Rheme Structure ]
Clause (Complex): Stitching together the ideal computer system for your busi
Clause as theme
Textual
continuative | structural | conjunctive adjunct
Interpersonal
vocative | modal(Adjunct) | finite verb | WH-(?)
Ideational
Theme:
Rheme: Stitching together the ideal computer system for your business can of
Reference No. 1  Alt  Document C:\SP\SPDOCS\TEXT1
[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F7/F8]-Shift [F9]-Menu [F10]-Save
```

Display 9 - FGP display for Theme-Rheme Structure

```
[ Theme-Rheme Structure ]
Clause (Complex): can often be a difficult operation.
Clause as theme
Textual
continuative | structural | conjunctive adjunct
Interpersonal
vocative | modal(Adjunct) | finite verb | WH-(?)
Ideational
Stitching together the ideal computer system for your business
Theme: topical(Stitching together the ideal computer system for your busines
Rheme: can often be a difficult operation.
Reference No. 1  Alt  Document C:\SP\SPDOCS\TEXT1
[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F7/F8]-Shift [F9]-Menu [F10]-Save
```

Display 10 - Theme-Rheme Structure analysis completed

Text views

Once completed, the analysis is saved in two forms: one returned in a more user-friendly form to a Sprint document; the second stored as prolog terms in a Turbo Prolog external database. The original text file remains unchanged.

At the outset, one text file - the original text - exists, we'll call it "TEXT1.SPR". When I highlight the clause to be analyzed and select Theme-Rheme analysis from the FGP pop-up menu, a new file "TEXT1.THM" is immediately created to receive back the analyzed clause. TEXT1.THM looks exactly like TEXT1.SPR except for that previously highlighted clause which is now in analyzed form. Once TEXT1.THM has been created, theme-rheme analysis must be continued with it and not the original document. In fact, if TEXT1.THM does already exist and the user attempts to do theme-rheme analysis on a highlighted clause in the original document, the program will automatically replace the original document, TEXT1.SPR, on the screen with the existing *.THM file. Similarly, new text files are created to give a text-view of clause analyses for mood-residue and transitivity (process-participant-circumstance).

TEXT1.SPR
(original document)
Display 11

TEXT1.THM	**TEXT1.MDR**	**TEXT1.PPC**
(theme-rheme)	**(mood-residue)**	**(transitivity)**
Display 12	**Display 13**	**Display 14**

These text-views become the focus of interaction between user and text. From them the user can highlight another clause for analysis, or even highlight a previously analyzed clause and modify the previous analysis or delete it.

```
[   T   1   ·   2   ·   3   ·   4   ·   5   ·   6   ]L  7   ·
Stitching together the ideal computer system for your business
can often be a difficult operation.
But when you have the right connections, everything can be
tailor-made to suit your needs.
At Jardine Office Systems, we not only offer you unrivalled
expertise, but also an entire range of software and hardware
capable of maximising your output, in any multivendor or local
are networking environment.
The ALR serve systems give exceptional speed and performance
capacity, and with a Novell operating system, you can monitor and
control every activity on the network.
Then, to further increase your capabilities, we can offer you a
superb range of the very latest equipment.
For extra storage and tape backup capability, there's the CORE
sub-system; for back-up power, we have the ELGAR uninterruptable
power supply. We can offer you the Canon LBP-811 server printer,
PROTEON token ring, HYUNDAI terminal workstations, BICC coaxial
and fibre optic cabling, COMPUTER ASSOCIATES SUPERCALC5, ACCPAC
PLUS, and CSPI BABY/36, in fact, virtually everything to help
your computers connect with each other.
It's all at extremely competitive prices and the Jardine Office
Systems service includes warranty, installation, and even staff
training.
C:\SP\SPDOCS\TEXT1.SPR          Ins          4:12am      Ln.2 of 32    Col2
```

Display 11 - Original document : TEXT1.SPR

```
[   T   1   ·   2   ·   3   ·   4   ·   5   ·   6   ]L  7   ·
[ref(1),theme([topical(Stitching together the ideal computer
system for your business)]),rheme(can often be a difficult
operation.)]
But when you have the right connections, everything can be
tailor-made to suit your needs.
At Jardine Office Systems, we not only offer you unrivalled
expertise, but also an entire range of software and hardware
capable of maximising your output, in any multivendor or local
are networking environment.
The ALR serve systems give exceptional speed and performance
capacity, and with a Novell operating system, you can monitor and
control every activity on the network.
Then, to further increase your capabilities, we can offer you a
superb range of the very latest equipment.
For extra storage and tape backup capability, there's the CORE
sub-system; for back-up power, we have the ELGAR uninterruptable
power supply. We can offer you the Canon LBP-811 server printer,
PROTEON token ring, HYUNDAI terminal workstations, BICC coaxial
and fibre optic cabling, COMPUTER ASSOCIATES SUPERCALC5, ACCPAC
PLUS, and CSPI BABY/36, in fact, virtually everything to help
your computers connect with each other.
It's all at extremely competitive prices and the Jardine Office
Systems service includes warranty, installation, and even staff
C:\SP\SPDOCS\TEXT1.THM          * Ins          4:10am      Ln.2 of 34    Col2
```

Display 12 - Text view of Theme-Rheme : TEXT1.THM

```
[   T   1   .   2   .   3   .   4   .   5   .   6   IL  7   .
[ref(1),mood-residue([mood(subject(Stitching together the ideal
computer system for your
business),finite(can),mood_adj(often)),residue(pred(be),complement(a
difficult operation.))])]
But when you have the right connections, everything can be
tailor-made to suit your needs.
At Jardine Office Systems, we not only offer you unrivalled
expertise, but also an entire range of software and hardware
capable of maximising your output, in any multivendor or local
are networking environment.
The ALR serve systems give exceptional speed and performance
capacity, and with a Novell operating system, you can monitor and
control every activity on the network.
Then, to further increase your capabilities, we can offer you a
superb range of the very latest equipment.
For extra storage and tape backup capability, there's the CORE
sub-system; for back-up power, we have the ELGAR uninterruptable
power supply. We can offer you the Canon LBP-811 server printer,
PROTEON token ring, HYUNDAI terminal workstations, BICC coaxial
and fibre optic cabling, COMPUTER ASSOCIATES SUPERCALC5, ACCPAC
PLUS, and CSPI BABY/36, in fact, virtually everything to help
your computers connect with each other.
It's all at extremely competitive prices and the Jardine Office
C:\SP\SPDOCS\TEXT1.MDR          * Ins Sel     4:23am     Ln.2 of 34    Col3
```

Display 13 - Text view of Mood-Residue : TEXT1.MDR

```
[   T   1   .   2   .   3   .   4   .   5   .   6   IL  7   .
[ref(1),transitivity([prtpnt(carrier(Stitching together the ideal
computer system for your business)),proc(intensive(can often
be)),prtpnt(attrib(a difficult operation.))])]
But when you have the right connections, everything can be
tailor-made to suit your needs.
At Jardine Office Systems, we not only offer you unrivalled
expertise, but also an entire range of software and hardware
capable of maximising your output, in any multivendor or local
are networking environment.
The ALR serve systems give exceptional speed and performance
capacity, and with a Novell operating system, you can monitor and
control every activity on the network.
Then, to further increase your capabilities, we can offer you a
superb range of the very latest equipment.
For extra storage and tape backup capability, there's the CORE
sub-system; for back-up power, we have the ELGAR uninterruptable
power supply. We can offer you the Canon LBP-811 server printer,
PROTEON token ring, HYUNDAI terminal workstations, BICC coaxial
and fibre optic cabling, COMPUTER ASSOCIATES SUPERCALC5, ACCPAC
PLUS, and CSPI BABY/36, in fact, virtually everything to help
your computers connect with each other.
It's all at extremely competitive prices and the Jardine Office
Systems service includes warranty, installation, and even staff
C:\SP\SPDOCS\TEXT1.PPC          * Ins         4:22am     Ln.2 of 34    Col3
```

Display 14 - Text view of Transitivity : TEXT1.PPC

Embedded analyses

The text-views also facilitate embedded analyses. For example, in the second sentence of TEXT1

- "But when you have the right connections, everything can be tailor made to suit your needs." - at the level of clause complex, we might analyze the sentence as follows:

[ref(2), theme([struct(But), clause-as-theme(when you have the right connections)]), rheme(everything can be tailor-made to suit your needs.)]

The modifier clause, "when you have the right connections", is in thematic position before the head clause. The analysis does not stop there, however, as we still need to analyze both the modifier and head clauses for theme-rheme structure. In TEXT1.THM, I then highlight just the modifier clause for analysis,

[ref(2), theme([struct(But), clause-as-theme(**when you have the right connections**)]), rheme(everything can be tailor-made to suit your needs.)]

with the result given below:

[ref(2), theme([struct(But),clause-as-theme(
[ref(3), theme([struct(when),topical(you)]), rheme(have the right connections,)])]), rheme(everything can be tailor-made to suit your needs.)]

Likewise, the head clause,

[ref(2), theme([struct(But),clause-as-theme(
[ref(3), theme([struct(when),topical(you)]), rheme(have the right connections,)])]), rheme(**everything can be tailor-made to suit your needs.**)]

requires analysis as shown below:

[ref(2), theme([struct(But),clause-as-theme(
[ref(3), theme([struct(when),topical(you)]), rheme(have the right connections,)])]), rheme(
[ref(4), theme([topical(everything)]), rheme(can be tailor-made to suit your needs.)]
)]

Alternate analyses

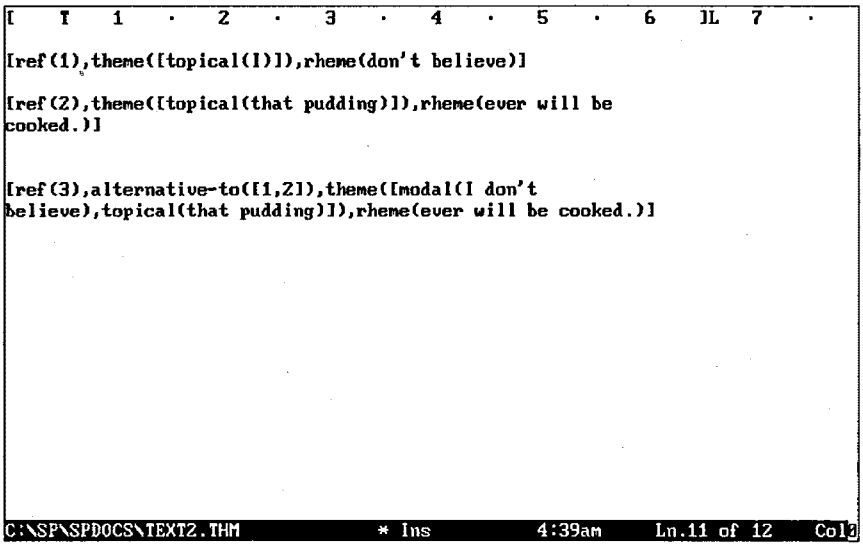
Where two interpretations of the same clause are possible, one the literal or congruent, the other metaphorical, both analyses can be included. Halliday gives as an example of a grammatical metaphor in the interpersonal component the sentence "I don't believe that pudding ever will be cooked." Here, the opening phrase "I don't believe" functions as an interpersonal (modal) theme:

[ref(3), **alternative-to([1,2])**, theme([modal-adj(I don't believe), topical(that pudding)]), rheme(ever will be cooked)]

The list of integer values assigned to "alternative-to" indicates the clause analysis/analyses where the congruent interpretation of this clause is given:

[ref(1), theme([topical(I)]), rheme(don't believe)]

[ref(2), theme([topical(that pudding)]), rheme(ever will be
cooked.)]



Display 15 - Alternate analyses in text view

Analyses as terms in a prolog database

Besides the text-views, analyses are also saved as prolog terms in a Turbo Prolog external database. Prolog is what is known as a declarative or database language. For instance, after analyzing the first clause of the document TEXT1 in terms of theme-rheme, mood-residue and transitivity structures, our database would contain the following three terms:

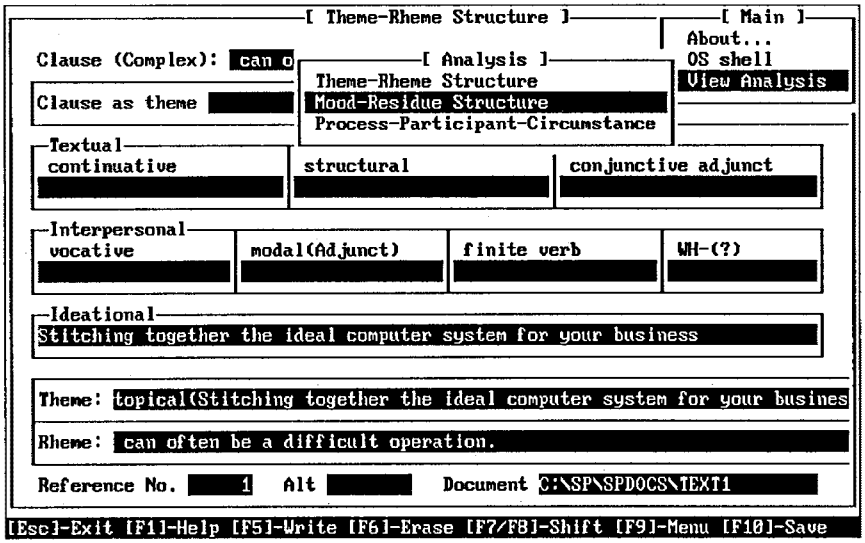
```
~1,[ref(1),theme([e("topical","Stitching together the
ideal computer system for your business")],rheme("can
often be a difficult operation.")]

~2,[ref(1),mood([m("subject","Stitching together the
ideal computer system for your business"),m("finite",
"can"),m("mood-adj","often")]),residue([r("pred",
"be"),r("complement","a difficult operation.")])]

~3,[ref(1),participant([e("carrier","Stitching
together the ideal computer system for your
business")]), process ([e("intensive","can often
be")]), participant([e("attrib","a difficult
operation.")])]
```

In this way, information about the clauses that comprise a text can be accessed easily and efficiently. In fact, two external database files are saved for each text, one containing the screen data (what the contents were of each field in the analysis screen when the user saved the analysis and exited to Sprint), the other the analyses themselves. The file containing the screen data is necessary for the functioning of the program - it is not accessible by the user. If, as mentioned before, you highlight a previously analyzed clause, then the analysis screen will appear just as you left it when you saved and exited to Sprint. This makes it easier for the user to modify a previous analysis. The second database file was designed to support further extension of the software in two ways: (a) to enable a user to query the database for information about consistent patterns of usage - useful if one were looking for instances of foregrounding; and (b) to facilitate future automation of certain steps in the analytical process. Work on a dictionary to accompany the processor has also been successfully completed. To this end, I translated the Pascal source code for Borland's Turbo

Lightning's engine into C so as to permit direct access of Turbo Lightning's dictionary and thesaurus entries from within Prolog. A more immediate usefulness for the second database file is illustrated in displays 16 through 18. In Display 16, while the user is working on theme-rheme analysis, (s)he presses the Menu key - F9 - and chooses to view either the mood-residue or transitivity structure for this clause. The program searches through the database for the requested analysis and if found displays the structure in the Analysis box (see Displays 17 and 18).



Display 16 - Selecting View from FGP Menu

Processing for meaning

The three kinds of structural analysis that together comprise the FG Processor are each a knowledge source, a knowledge module. The modules are independent of one another, each has its own unique terminology and organization. Theme-rheme structure includes elements not found in mood-residue or transitivity structures. The same holds true for mood-residue and transitivity structures when compared with each other. Each module assembles a partial solution to the larger question of what is the overall meaning which the text conveys.

```
[ Theme-Rheme Structure ]                                  [ Main ]
                                                           About...
Clause (Complex): can often be a difficult operation.      OS shell
                                                           View Analysis
Clause as theme

Textual
continuative                 structural                   conjunctive adjunct

Interpersonal
vocative                     modal(Adjunct)               finite verb                  WH-(?)

Ideational
Stitching together the ideal computer system for your business

[ Mood-Residue Structure ]
[ref(1),mood-residue([mood(subject(Stitching together the ideal computer sys
tem for your business),finite(can),mood-adj(often)),residue(pred(be),complem
ent(a difficult operation.))])]

Reference No. 1   Alt        Document C:\SP\SPDOCS\TEXT1

[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F7/F8]-Shift [F9]-Menu [F10]-Save
```

Display 17 - Viewing Mood-Residue Structure

```
[ Theme-Rheme Structure ]                                  [ Main ]
                                                           About...
Clause (Complex): can often be a difficult operation.      OS shell
                                                           View Analysis
Clause as theme

Textual
continuative                 structural                   conjunctive adjunct

Interpersonal
vocative                     modal(Adjunct)               finite verb                  WH-(?)

Ideational
Stitching together the ideal computer system for your business

[ Transitivity Structure ]
[ref(1),transitivity([prtpnt(carrier(Stitching together the ideal computer s
ystem for your business)),proc(intensive(can often be)),prtpnt(attrib(a diff
icult operation.))])]

Reference No. 1   Alt        Document C:\SP\SPDOCS\TEXT1

[Esc]-Exit [F1]-Help [F5]-Write [F6]-Erase [F7/F8]-Shift [F9]-Menu [F10]-Save
```

Display 18 - Viewing Transitivity Structure

The solution structure emerging from a lexicogrammatical description involving the three components of meaning and their corresponding structural analyses enables one to show how, and why, the text means what it does (1985:xv).

I refer you to Ruqaiya Hasan's analysis of Les Murray's poem, **Widower in the country** (Hasan:1989), in which she clearly demonstrates how a knowledge of theme-rheme, mood-residue and transitivity structures provides the basis for identifying foregrounding thereby contributing greatly to our understanding of the meaning of the text. For example, from her analysis of processes and participants in terms of transitivity structure of clauses, she observed "that the ascription of processes that require animate carriers of the -er role to inanimate carriers resulted in wordings that camoflaged the widower's deep sense of sorrow"(1989:93).

Contributing to the understanding of the text is, in fact, the lower of two possible levels of achievement for the linguist to aim at. The higher level achievement," says Halliday," is a contribution to the **evaluation** of the text: the linguistic analysis may enable one to say why the text is, or is not, an effective text for its own purposes - in what respects it succeeds and in what respect it fails, or is less successful" (1985:xv). Understanding the text is one thing, evaluating the text is another. The latter "assumes an interpretation not only of the environment of the text, its 'context of situation' and context of culture, but also of how the linguistic features of a text relate systematically to the features of its environment, including the intentions of those involved in its production" (1985:xv,xvi).

The FGP is - at present - a tool, a 'meaning processor', not a parser. I would like to draw an analogy between the FGP as meaning processor and that kind of software we are all so familiar with - a word processor. A word processor assists the writer by making the task of writing easier to accomplish. Of course, the writer must still know what (s)he wants to communicate, the computer does not itself create the text. Similarly, the Functional Grammar Processor assists the user in doing the analysis; it also facilitates the subsequent retrieval of information about the text by collecting all the clause analyses into a global database. In its present form the user must still do the analysis, eg. the user identifies the next element in the clause, enters that element into the appropriate field, decides the analysis is complete, exits and

saves. The computer does not interpret meaning - perhaps that will come later - for now, it only records the interpretation made by the user. The user must know how to analyze the text, the computer does not itself understand the text.

Why, you might be asking, do we need functional grammar, let alone a tool based on that approach, to help us understand what we already understand? The answer is quite simple. FG shows the 'how and why' a text means what it does. It identifies the structures at clause level that contribute to the meaning of a text. Thus whenever we save an analysis using the FGProcessor, we are building a database of entries each of which identifies the elements of theme-rheme, mood-residue and transitivity structures that provide the wherewithal to create meaning.

Applications

Two application areas which I intend to develop are (i) a Functional Grammar Processor for Chinese texts, and (ii) automatic text analysis.

A Functional Grammar Processor for Chinese Texts

Implementation of a Chinese version of the FGP will assist in the advancement of research into the similarities and differences between Chinese and English text structures. Such insight should be of interest to scholars in the fields of translation, contrastive linguistics and Chinese linguistics.

Halliday maintains that the ideational, interpersonal, and textual components of meaning are universal to all languages, while their structures - their terminology and organization - are language specific. Thus, while the FGP for texts in Chinese will share a similar conceptual basis with the existing FGP for texts in English, the knowledge modules will require extensive alteration.

The development of the FGP for Chinese texts includes the following steps: (i) identification of field names and structural organization of ideational, textual and interpersonal components of meaning in Chinese written texts; (ii) implementation of input screens, help windows and menus in Chinese; (iii) the Functional Grammar Processor in its present form includes implementation of a prolog-based external database for storing the clause analyses as they are made by the linguist-as-

analyst through interaction with the shell program -- this database structure can be retained; (iv) The mechanics of the interaction between the FGP and the word processor will remain largely the same.

A FGP for Chinese texts can make a significant contribution to the advancement of computer-assisted text analysis in Chinese. Moreover, such a tool should be of interest to those engaged in contrastive studies and translation as its approach to meaning and understanding extends beyond the words that comprise the text to larger elements that contribute significantly to the overall meaning of the text.

Automatic Text Analysis

The Functional Grammar Processor in its present form includes implementation of a prolog-based external database for storing the clause analyses as they are made by the linguist/analyst through interaction with the shell program. This external database was designed looking ahead to future automation of the analytical process.

Conceptually, the FG Processor resembles in certain respects the blackboard model of problem solving. Different knowledge sources participate in 'assembling' a solution. Edward Feigenbaum calls it "'knowledge assembly' - finding the right piece of knowledge to build into the right place in the emerging solution structure"(1988:vi).

Engelmore, et. al. (1988:4) identify two basic components of the blackboard model:

(1) **The knowledge sources**

The knowledge needed to solve the problem partitioned into knowledge sources, which are kept separate and independent.

(2) **The blackboard data structure**

The problem-solving state data are kept in a global database, the blackboard. Knowledge sources produce changes to the blackboard which lead incrementally to a solution to the problem.

Communication and interaction among the knowledge sources take place solely through the blackboard.

As already mentioned, the three kinds of structural analysis that together comprise the FG Processor are each a kind of knowledge source, a knowledge module. Whenever a clause is analyzed, by whichever module, that analysis is saved as a prolog term to an external database - what could be called the blackboard. In other words, the design of the blackboard data structure and knowledge modules as conceptual and computational entities has already been completed. The next step involves determining how these knowledge modules might interact with one another by means of the blackboard heading through the analytical process to a solution. Each module needs to look to the blackboard, responding "opportunistically to changes on the blackboard" (Engelmore, et.al.,1988:13).

In further developing the FGP, attention must be given to automating this aspect of the system - opportunistic reasoning. A set of control modules are necessary to monitor changes to the blackboard and set the agenda for further work toward a solution structure. To illustrate with a simple example, Theme is that element that comes first in the clause. So when doing theme-rheme analysis, the theme-rheme module might look to the blackboard to see what elements have been identified through mood-residue analysis. If the first element in the clause is the Subject, Finite, Circumstantial Adjunct, then the topical theme has been easily identified.

I do not foresee the complete automation of text analysis to the elimination of any role for the linguist/analyst. That is why the interactive environment deserves further refinement and improvement - quite possibly within a Windows environment. As this phase of the work proceeds, I do expect, however, that the system itself will contribute more and more to the analytical process.

Implications for contrastive studies and machine translation

Greater automation of the analytical process accompanied by development of a FGP for Chinese texts raises significant implications for contrastive studies, most immediately, and ultimately machine translation.

Functional Grammar is concerned with the how and why of meaning. The Functional Grammar Processor in its present state compiles a database of clause analyses for texts in English. Add a version of the FGP for Chinese texts, begin to automate the analytical process and you have the makings of a system for exploring and later comparing/contrasting the clausal elements that together contribute to the textual, ideational and interpersonal meaning of texts in the two languages. Providing greater insight into the structures and their elements in English and Chinese can only serve to advance the prospects for an improved state of the art in machine translation.

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POINT-MAKING IN AMERICAN AND JAPANESE BUSINESS MEETINGS

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1. Introduction

In the tradition of interactional sociolinguistics begun by Gumperz (1982) and extended by Tannen (1984), research has shown that different sociocultural groups use different conversational strategies to communicate and interact with one another. Researchers have also shown that these differences occur in part because expectations about communication and interaction vary across sociocultural groups. In cross-cultural interaction, such differences are often misunderstood and result in stereotypes: 'Japanese are illogical and evasive. They don't get to the point, and you never know what they are trying to say'; 'Americans are aggressive and insensitive. They just steamroll over us with their own viewpoints, and never take the time to cultivate relationships'.

As part of an ongoing investigation of differences in American and Japanese conversational strategies, in this paper, I demonstrate the different ways in which American and Japanese bank officers make topical points in business meetings. I show that the American officers arrange topical points in a linear order; they introduce their first point by stating the present status of the deal, subsequent points by providing background information on the deal, and concluding points by describing plausible outcomes of the deal. The Japanese officers, on the other hand, arrange their points circularly; they make points through examples.

Each strategy responds to culture-specific expectations for interaction. In the following, I first describe these expectations which guide the interaction among the American and Japanese officers in each of the intracultural bank meetings. These expectations are composed of those about business interaction specifically, and those about sociocultural interaction generally. I then discuss how these expectations coalesce to create unique interactional expectations for the Americans and the Japanese. Finally, I present the examples, and show how the American and Japanese point-making strategies reflect their respective expectations for interaction.

2. Expectations for Business Interaction

The conversations analyzed are bank officers' meetings, recorded in two international financial institutions in San Francisco, the summer of 1988. Both are examples of weekly meetings, recorded by a participant as they naturally occurred. Each includes three bank officers. Culture-specific expectations about business interaction guide each of the conversations so that the resultant qualities of the two meetings are entirely different.

In the American meeting, each officer-in-charge reports on a particular 'deal' in reporting rounds. A reporting round is a grouped set of topics, in which each participant independently reports on relevant issues according to a predefined agenda for the meeting. In the American meeting, then, the officers independently raise and conclude their own topics. In contrast, in the Japanese meeting, the structure appears looser as any officer can raise and contribute to a topic, topics are not verbally concluded, and any officer can bring up the next topic. Thus, to an American, the Japanese conversation has a much less formal, business-like tone.

There are two important concepts in Japanese business which help explain this qualitative difference in American and Japanese business conversation. The first has to do with differences in decision-making processes. That is, in contrast to the American decision-making process which uses the meeting setting as the actual locus for the airing of individual ideas and subsequent decision-making, studies of Japanese business (for example, see Okabe 1983; Ouchi 1981) report that a great majority of Japanese decision-making occurs 'behind-the-scenes', using the ringi system of collective and unanimous approval. The ringi system is one where 'a formal proposal is written and then circulated from the bottom of the organization to the top' (Ouchi 1981:38). The meeting setting in Japanese business is then often used to merely stage the formality of meeting occurrence, since the decision is often already made and known to meeting members. Moreover, because the Japanese style of management is typically collective, no one officer is responsible for a single 'deal' as is the case in the American meeting.

Another difference in Japanese business practice is the significance placed on what Graham (in Pfeiffer 1988) has termed 'nontask sounding'. Referred to as nemawashi (literally, 'rootbinding') in Japanese, the discourse is characterized by a light personal tone, which as Graham points out, is often interpreted by Americans as having the quality of 'small talk'. He

further notes that Americans often think of this chatty discourse as unnecessary and irrelevant to the business-at-hand; Americans want to 'get on with it'. For the Japanese, however, this process of building personal relationships through nontask sounding is at the heart of the matter; trustworthy business relations are established only after personal relationships have been established.

In short, Americans and Japanese generally conduct business in different ways; they have different ways of reaching decisions, and different ways of building business and personal relationships. Furthermore, because of such differences, Americans and Japanese have different expectations of what should take place in a meeting.

3. Sociocultural Expectations for Interaction

Americans and Japanese also have fundamentally different cultural expectations which motivate strategic differences in topic management. Here, I focus on two dimensions of interactional expectations: the Individuality-Collectivity Continuum, and the Talk-Silence Continuum. A number of comparative studies of American-Japanese behavior have characterized Americans as preferring the interactional mode of individuality, but Japanese as preferring the mode of collectivity. Capturing this difference, the anthropologist Wagatsuma (1985) once suggested that 'Americans are like peas on a plate, but Japanese, like rice in a bowl'. Other comparative studies point to the American preference for, but the Japanese distrust of, talk. Some old proverbs reflect these orientations: in America, 'the squeaky wheel gets the grease'; in Japan, '*kuchi wa wazawai no moto*', 'the mouth is the source of calamity'.

4. Double Binds and Interactional Expectations

When an individual talks, that talk can be attributed to that individual. Conversely, silence cannot be attributed to a single individual; it belongs to all participants present in a conversational event (Maynard 1989; Philips 1985; Tannen 1985). Thus, in one sense, individuality and talk, and collectivity and silence interact complimentarily. However, the two dimensions also present Americans and Japanese with what Bateson (1979) has referred to as a 'double bind'. Double binds occur because both poles in a continuum are necessary, and because interactants are called upon to balance both poles simultaneously.

For Americans, a double bind occurs because although individuality is stressed, conversationalists

still need to relate to one another and be understood. Tannen (1984) discusses this American double bind as the simultaneous and conflicting need for independence and involvement. Furthermore, both individuality and collectivity are expressed through talk. Americans must then use talk strategies which respond to the interactional expectation of both individuality and collectivity. I call this interactive expectation, 'within-group independence.'

In contrast, for Japanese, a double bind occurs because while interactions frequently require talk, talk is viewed as untrustworthy. This means that each occasion of talk creates a situation for an unreliable, mistrustful interaction, which jeopardizes collectivity. Japanese must therefore use conversational strategies which respond to the interactional expectation of using the mistrusted medium of talk in a way that still allows for conversationalists to reach collective goals. I call this interactive expectation, 'nonconfrontation.' In the following, I show how point-making strategies, among other conversational strategies, reflect such differences in American and Japanese expectations for interaction.

5.1. Point-Making: The American Strategy

In the American meeting, all officers, Craig, Karen and Lynn, organize their points in a linear order, and systematically follow the temporally-sequenced progression: 1) report the present status of the deal, 2) provide background information on the deal, and 3) give future expectations about the deal. This general pattern is followed by all participants in the American meeting, as I show in the following series of examples.

First, to commence their line of sequential points, each officer-in-charge follows their own topic openings with an initial point about the present status of the deal. Example 1 shows an example of these initial points for each of the officers.

Example 1: Initial Point

Craig	We are in, ah final documentation.
Karen	That's the one that we sold out of a couple of weeks ago.
Lynn	There are so many hidden, h- ah:, hidden aspects to the deal that are not in th- in the projections.

As the officers make an initial point about the present status of their own deals following their individual topic openings, they reassert their status

as the officer who is in charge of the particular deal. Doing so then affords each officer-in-charge with the opportunity to emphasize their individual membership in the group.

Following an initial statement about their own deal, each officer-in-charge then gives background information on the deal. As they give the context for their deals, they begin to move backward along a time-line to show how the deal developed to its present status. Unlike the first point which is always singularly stated by the officer-in-charge, these points are frequently negotiated, as other officers help co-construct the background. Example 2 shows how Lynn helps Craig supply the background information for his deal. In this point, the two officers jointly determine the portion of the deal that Craig has sold.

<u>Example 2: Interim Point</u>

Craig	At this point I have sold, uh: I want to say thirty 't see ten of fifteen, and-
	[
Lynn	thirty five
Craig	fifteen, thirty five million.

As Lynn presumably calculates more quickly, she inserts 'thirty five' into Craig's point about the portion he has sold in his deal. Either through his own calculations or repeating Lynn's, Craig also concludes that he has sold 'thirty five million' of the deal thus far. By co-constructing the interim points about the background of a deal, the American officers are then also able to satisfy their need for collectivity.

Following the negotiation of the background context, the officers then project into the future, and discuss the plausible outcome of each deal. In all topics, the officer-in-charge makes these final points about future expectations. Examples of these concluding points are shown for each officer in Example 3.

<u>Example 3: Final Point</u>

Craig	I mean **hopefully** I would know something by Friday.
Karen	**HOPEfully** they will buy by noon today that's-by noon California time today. If they DON'T ah:, I- I- have, **hopefully** another buyer in my- pocket.
Lynn	We're just **expecting** a lot of- it's just going to be a lot of work.

Example 3 shows that each officer expresses their

tentative expectations about the future outcome of a deal by using conditional expressions such as 'hope' and 'expect'. If such future anticipations are predictable or known, the officers also state a time-frame for accomplishment: 'by Friday', 'by noon today', and so on. Each officer-in-charge therefore consistently makes his or her own final point about future expectations of a deal by expressing such hopes and anticipations.

The American officers thus move along a time-line to make their points. They begin in the present by stating the current status of the deal, move back in time to discuss past developments which provide the background to the deal, and then finally project out to the future to hypothesize plausible outcomes of the deal. The time-line therefore follows a linear organizational pattern in each topic: PRESENT-PAST-FUTURE. As they deliver their initial and final points independently, the American officers establish their officer-in-charge status, but they also complement such an expression of individuality with the collective mediation of interim points. Furthermore, because all points follow the same pattern of linear organization, the participants also achieve group understanding. The American point-making strategy then helps the officers achieve their expectation of within-group independence.

5.2. Point-Making: The Japanese Strategy

In contrast, the three participants in the Japanese meeting, Tanaka, Ikeda and Shimizu, use examples to make topical points. Markers such as 'tatoeba' ('for example'), '... mitai na' ('like'), 'aa yuu/soo yuu/to yuu (yoo na)' ('that kind of/(things) like (that)'), and '... to ka' ('for example'/'et cetera'/'or something') signal these exemplified points, and occur in the Japanese conversation 35 times. This contrasts sharply with the usage of exemplification markers in the American meeting; there are only 2 uses of 'or something' and no uses of 'for example', 'kind of/something (like)' or '(things) like (that)'. Furthermore, as opposed to the temporally sequenced points of the American meeting, the exemplified points are not arranged in a particular linear order; rather, they are arranged circularly to cohere to the general topic under discussion.

Example 4 illustrates how one Japanese officer, Ikeda, raises an example to make a point about a subtopic which concerns the different attitudes that Americans and Japanese have toward balancing work and vacations. Ikeda's exemplified point is about an

American accountant who plans to take a vacation despite an urgency of attention called by a bad account. Example 4 shows how the exemplification markers 'tatoeba' ('for example'), 'aa yuu' ('that kind of'), 'soo yuu' ('that kind of') and 'to yuu' ('kind of') surround this exemplified point.

Example 4

Ikeda datte **tatoeba** ne sono:: saikin waruku natta kureditto: no banku miitingu de mo ne, sono:: ma kureditto ga yoosuru ni waruku natten dakara sootoo kinkyuusei ga aru- miitingu da to omoun dakeDO: soko de **tatoeba**: yatotteru ne ano:: sii pii eii: ga desu ne jibun wa: nekusuto uiikusu ga bakeishon da to, de tsuite wa ne sono,
[
Tanaka [warau]
Ikeda repooto no teishutsu ga, e: okuremasu to, sono kekka, **aa: yuu** hara- happyoo o suru to ne, sono: rigaikankeisha de aru: ginkoodan: wa ne, nanto naku nattoku shichau to, soide:: u:: **soo yuu** no wa chotto nihon: ja kangaerare nai
{2.75}
Ikeda **to yuu** inshoo o mottan desu kedo ne

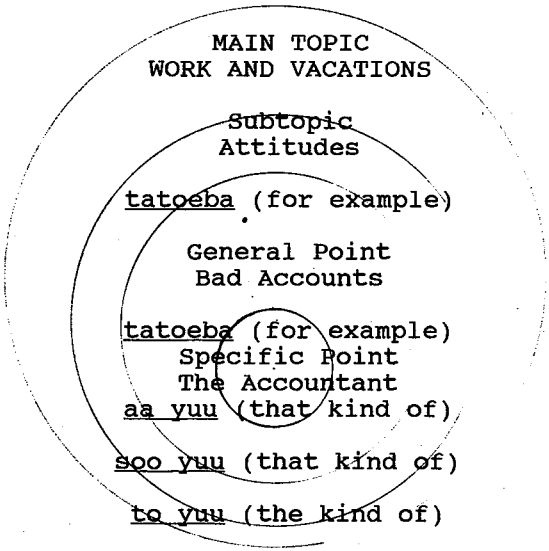
TRANSLATION

Ikeda Yeah, but **for example**, uhm even in bank meetings which discuss credits that have recently turned bad, uhm well, in other words the credit has gotten bad so (I) think it's a pretty urgent meeting but, **for example** the CPA hired there, uhm (just says) that (s/he himself) is taking a vacation next week, and then, following that,
[
Tanaka [laughs]
Ikeda (s/he says) the presentation of the report is, ah going to be late, and the result of that, when **that kind of** announcement is made, uhm the banking groups (who are) concerned somehow just kind of accept it. And then uhm **that kind of thing** is unheard of in Japan.
{2.75 second pause}
Ikeda That's **the kind of** impression (I) got, but

Example 4 shows that Ikeda actually makes two points about the subtopic of 'American and Japanese attitudes toward work and vacation-taking'. Each point contributes to the subtopic in a decreasing level of generality, so that the second, more specific point about the accountant is embedded in the first point about how Americans often handle bad accounts.

Furthermore, each point is flanked by markers which signal the level of the exemplified point. The point about the accountant is pre-signalled with the marker '<u>tatoeba</u>' (for example) and post-signalled with '<u>aa yuu</u>' (that kind of). The point about the 'bad accounts' which encompasses the more specific point about the accountant is further pre- and post-signalled with the markers '<u>tatoeba</u>' (for example) and '<u>soo yuu</u>' (that kind of). Finally, to exit from the example, Ikeda brings the level of generality back to the subtopic with a long pause of almost three seconds, followed by a comment containing an exemplification marker: '**<u>to yuu</u>** inshoo o mottandesu kedo ne' ('that's **the kind of** impression (I) got'. Ikeda therefore marks both the beginning and ending of his example at several levels of generality. Figure 1 illustrates these points along with their markers in terms of four concentric circles.

FIGURE 1



The other Japanese officers also use a similar pattern to make topical points, and all three participants signal their exemplified points with verbal markers. Exemplified point-making serves the Japanese expectation of nonconfrontation in several ways, one of which I discuss below. (I discuss other ways in which exemplified points serve the Japanese expectation of nonconfrontation in Yamada, forthcoming). An example shifts the responsibility of an opinion from a participant to the example; if a participant is held to the viewpoint expressed in an

example, s/he could say, 'it's not necessarily my point of view'. Furthermore, because an example is an instance of one of many other alternatives, the participants can make the claim that their point is 'just an example'; '<u>tatoeba no hanashi da</u>' (literally, 'it's a for example's talk'). Because a specific opinion cannot be tied to a particular participant, the Japanese conversationalists do not have to be held accountable for the negatively viewed talk.

The shifting of accountability is particularly useful when highly personal points are made in potentially confrontational topics. In Example 4, Ikeda discusses an instance of an accountant who, in his opinion, is about to be negligent by ignoring an account that has gone bad. His meta-point is, then, that the American attitude toward work and vacation-taking (which is different from the Japanese attitude) is IRRESPONSIBLE; they take vacations even in urgent situations. Realizing that his viewpoint may not be readily acceptable to the other two officers, Ikeda makes his point through an example. (As it turns out, neither of the officers agree with Ikeda). However, because the origination of the viewpoint is recast to the example, Ikeda is not obliged to assume liability. By shifting the responsibility from themselves to an example, the Japanese officers can make highly personal points without being directly liable. Exemplified point-making is, then, a strategy that allows participants to make personal points nonconfrontationally.

6. Summary

In sum, I showed that the American officers-in-charge delivered their initial and final points individually in their own topics, but collectively negotiated an understanding in the interim points. Moreover, as all officers sequenced their points using the same linear organization, individual topic delivery is both respected and understood by the group. The American officers were then able to attain their expectation of within-group independence. In contrast to the stick-to-the point method of American point organization, the Japanese officers arranged points in a circular organization. As the exemplified points drew the participant focus toward an example, they dispersed talk-accountability in confrontational talk. The Japanese officers then accomplished their expectation of nonconfrontation as they collectively and continually drew the attention away from the talk that is negatively viewed. The American and Japanese point-making strategies therefore reflect the different ways in which the two groups organize their

topical points and relate to one another in group-internal business meetings.

As a source of cross-cultural misunderstandings, differences in strategies for managing topical talk in business meetings lead to the oft-heard stereotypes: 'Japanese are simply illogical, they make all these irrelevant, tangential and off-the topic points'; 'Americans are aggressive, they tirelessly make exorbitantly logical points'. Thus, topic-management strategies that seem meaningful and appropriate in intracultural communication often create problems in cross-cultural interaction.

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"What shall we talk about next?": Cognitive Topic in the Production and Interpretation of Conversation

Cynthia Ford Meyer

Rice University

"Do you remember mama anything about when Oklahoma became a state? Do you remember any of the talk about it?"

LeRoy Ford to his mother, ca 1963

Introduction[1]. Perhaps the most obvious characteristic of conversation is that when people converse, they talk "about" certain things. All conversation involves topic in this sense, and the patterning of conversational topic invites a cognitive accounting.

Lamb's cognitive approach to the study of language (e.g. 1971, 1984) has emphasized that language data provides important evidence about structures and processes within the cognitive systems of individual speakers. A main conclusion is that the cognitive system consists of a network of relationships. If conversation is considered from within this framework, it can be viewed as a process by which separate network systems interact by means of the speech signal and change as a result.

Most cognitive linguistic studies in this tradition have concentrated on short texts, neglecting for the most part the data of natural conversation. In contrast, much has been learned in recent years about the structure of conversation, largely through the efforts of a discipline known as conversation analysis (e.g. Schenkein, 1978; Atkinson & Heritage, 1984); but these studies have neglected the cognitive aspects of conversation, focusing their main efforts instead on a social accounting. Among other things, however, they have shown that a given interlocutor's next utterance provides overt evidence concerning his orientation to the conversation up to that point and also that breakdowns in the flow of conversation contain important clues about the interlocutors' expectations.[2] Insights such as this have obvious relevance for a cognitive approach and recommend conversational data to cognitive linguists as an important source.

This paper combines cognitive linguistic concerns with these insights from conversation analysis in order to investigate conversational topic. It is concerned with the patterning of conversational topic and with an

accounting of that pattern in terms of the cognitive structures and processes that interlocutors use to create it and comprehend it. More generally, this study suggests that a cognitive accounting of naturally occurring conversation is a possible and promising pursuit.

The data. The data for this study consists of a series of taped interviews that LeRoy Ford, a native of Oklahoma, conducted with his mother Lucinda and father Walter in the 1950s and 1960s. LeRoy carried out these interviews in order to record Lucinda's and Walter's memories of their early lives on the Oklahoma frontier[3]. This corpus provides good data for the study of cognitive aspects of topic for a number of reasons, chief among them that LeRoy's role as interviewer requires him to come up with a series of conversation topics. Thus his topic activities are relatively easy to observe[4].

Cognitive topic. The notion of conversational topic can be identified for practical purposes with the content or "referential system" of the text (Grimes 1982:165). That is, the conversation is about the participants, events, and concepts to which it refers.[5] In considering the cognitive systems of individuals conversing about certain topics, it becomes evident that this "aboutness" that can be observed in conversation must have a cognitive source. Its patterning reflects the cognitive systems that produce it. Thus a terminological distinction can be made differentiating the "discourse" or "conversational topic" that is evident in the text from the cognitive source to which it corresponds, which can be called "cognitive topic"[6].

In terms of the cognitive network systems of individuals, a working definition of cognitive topic could characterize it as an activated location in the cognitive network memory of an interlocutor that guides him in the production and interpretation of conversation. This initial definition can be further refined as follows. First, as activation has a focus but is not constrained to a single point of the cognitive network at one time, so cognitive topic can be viewed as a scalar property. All activated portions are topical. The most activated part is the most topical, and the center of activation is the center of cognitive topic. Besides having this scalar quality, cognitive topic can be seen to exist at different levels of generality. For example "Lucinda's life in Oklahoma" comprises the most general or global level topic of LeRoy's interviews with his mother. Within this general level topic, however, LeRoy activates more local or specific sub-topics such as "the dugout on the farm" or "the children".

Questions for research. There are two major questions to be considered with respect to the cognitive aspects of topic. First is that of how a speaker selects from his cognitive system new cognitive topics for the conversation. The second question involves the coordination and recognition of topic. That is, once a speaker selects a topic for conversation, he must introduce this topic to his conversation partner in such a way that it can be understood, and the listener must work to achieve that understanding. Cognitive topic selection amounts to the speaker's activity of locating (i.e. activating) a place in his own cognitive system which once located can then be encoded in the linguistic signal as conversation topic. Thus it guides him in the production of conversation. Cognitive topic coordination amounts to assisting the interpreter, via the speech signal, to activate a corresponding location in his system. Once this location is found, the speaker's forthcoming utterances can be properly interpreted. Thus cognitive topic guides in the interpretation of conversation.

The selection of cognitive topic. During the interviews, LeRoy selects a number of cognitive topics which he encodes as conversation topic. His selection proceeds in accordance with the way that information in his system is organized and activated. The cognitive principle which accounts for his selections is a function of the accessibility of information in his system. That is, of all the information in the network that could potentially be designated as cognitive topic, the most accessible information is most likely to be topicalized next. In network terms, accessibility in turn involves a number of factors. Three of these are briefly discussed here. 1. Local organization. In the excerpt below, LeRoy produces the general level topic of "when you were going from say Pottawatomie nation to Cloud Chief" (turn 6)[7].

When yóu all used to uh- ((Lu2A)) 6

when you were góing from- ((1 sec pause)) say Pottawatomie nátion-

to Clóud Chief- ((2 second pause))

what did you- kíds do to pass the tíme away?

Huh?

How- wh- whát did you sít on in the wágon? 7

Did you have cháirs? ((1))

Oh- sómetimes we had a what we called a sprang seat.

'n wé could have more than óne- sprang seat. ((Chuckling))

It was a séat had sprángs on it. ((1))

That réached way across the wágon.

Did they have a cúshion on it? 8

No- we just (doubled) a quílt and put ón it. ((Chuckling)) ((2))

They hadn't ^{3}cóme ^{2}to cushions ^{3}thén^{2}. ((Chuckling))

It was kinda ^{3}crówded^{1} in the wagon ^{1}wádn't it^{3} ^{1}with all your ^{3}fúrniture^{3}? ((2)) 9

Yeah- when we ^{3}móved^{1}- we had ^{3}two ^{1}wagons^{1}.

Uncle ^{3}Jéff^{2}- my ^{3}úncle^{2}- ^{4}hé ^{2}drove the ^{3}óxens^{2} and ^{3}dáddy^{2} drove the ^{4}téam^{1}.

When we moved up ^{3}hére^{1}.

From Wáshita ^{3}cóunty^{1}.

When you stopped to camp at ^{3}níght^{2}- did all the kids have ^{3}chóres to do^{3}? 10

Well we'd- go aróund 'n pick up little pieces a wóod- ((1))

to make the ^{3}cámp ^{1}fire out of^{1}. ((1))

Who put up the tént? ((1)) 11

Oh dáddy used to done most a ^{3}thát^{2}. ((3))

Did you put up a tent every time you stópped? ((1)) 12

^{2}No^{2}- not ^{3}éver^{1} time. ((1))

Did you sleep out in the ^{3}ópen sometimes^{3}? 13

^{1}Yeah^{2}. ((4))

Accompanying the selection of this global topic, LeRoy designates a series of more local topics beginning in 6d with "what the kids did to pass the time away" and continuing with topics concerning seating arrangements in the wagon (7), camping on the trip (10), etc. Just as all of LeRoy's cognitive topics during the whole conversation are chosen within the global area of his knowledge about Lucinda's past, so are these subtopics chosen from within their immediate super-topic, that concerning the move to Cloud Chief. We observe, therefore, that in conversation, a number of contiguous turns tend to cohere topically. Why should this be? This question will be considered after another observation is made about the introduction of this topic.

A number of surface features of the text at 6 correlate with LeRoy's introduction of this general level topic and the first sub-topic into the conversation. All of these features involve disfluencies. Line 6a constitutes a false start, and it ends with the non-word "uh". Lines 6b and c each have a pause. Line 6d has a hesitation mid-utterance. Similar disfluency marks the continued formulation of this topic in 7. There are no disfluencies, however, marking the subtopics of this topic that LeRoy expresses in 8 through 13. All are perfectly fluent. This situation,

in which disfluencies cluster around LeRoy's introduction of a new general level topic, but are less characteristic of more local topic development within that topic, occurs many times in the data and warrants a cognitive accounting as follows.

Within a speaker's total information network there exist local configurations or sub-areas of knowledge that serve to direct topic designation. This topic of LeRoy's, about a move to Cloud Chief, constitutes one such sub-area. It includes LeRoy's knowledge about trips like the one Lucinda might have been on. This knowledge includes facts such as these:

Trips involved wagons.
People sat in the wagons.
Possessions had to be moved in the wagons.
Travel took several days and involved overnight camping.
Tents were available for camping.

In LeRoy's cognitive network, such information is stored as a complex of nections closely related by virtue of their association to some central unifying nection. This unifying nection can here be identified as at the center of his cognitive topic at this point, the nection that represents this trip in particular and is associated with domain nections representing trips of that time and area and trips in general. This complex of nections is not isolated from the rest of the system. Instead, each nection involved has other connections elsewhere along which topic activation may move under certain circumstances. The central nection, however, organizes the others into a cognitive unit by virtue of their common association with it. Once topic activation enters such a central nection, it tends to remain within the sub-area, affecting various associated subtopics in turn, and this is what happens in LeRoy's system during the portion of the conversation from 6 to 13. In the conversation, the result is a cohesive series of questions rather than a random list. That is, the local organization of information in LeRoy's system contributes to the accessibility of the information for topicalization.

As for the disfluncies and their distribution, they result from LeRoy's processing problems as his topic activation enters such a cognitive sub-area from another place in the network. Initial activation and selection of a new general level topic involves a search through large portions of cognitive network, a complicated enterprise which requires time, hence the occurrence of false starts and in many cases lengthy initial pauses. Initial activation of individual nections or parts of nections within the new topic also requires time, hence the occurrence of utterance internal pauses,

hesitations, and filled pauses (i.e. "uh") before lexical items such as "Pottawatomie nation" in 6b. Once a localized topical portion of network is selected, however, further topical specification within that portion is simpler and less time consuming. The designation of these more specific topics involves a search through a much smaller (i.e. accessible) section of network. Hence there are fewer disfluencies associated with the subsequent questions. Local organization accounts both for the cohesion of series of questions and the distribution of LeRoy's disfluencies.

2. Proximity of connections. After the talk about Lucinda's wagon trip LeRoy selects a general topic of "on the farm at Erick" coupled with the more local topic of "burning buffalo chips" (turn 14).

((4 second pause)) ((Lu2A))

When you were at the [3]fárm[1] at uh- [3]Erick[1]- did you ever burn [3]búffalo chíps[3]? 14

[3]Oh [1]yes[2]. ((Chuckle))

This is a new global topic involving a new subarea of LeRoy's knowledge. It is chosen after the exhaustion of the previous topic and is encoded linguistically with two of the expected disfluencies: a four second pause and a mid-utterance "uh". But it is the more local subtopic, "burning buffalo chips", that is of special interest here for the text provides good evidence as to its specific cognitive motivation. It comes from activations sparked by Lucinda's mention of "little pieces a wood" and "camp fire" as cited above in 10.1 and 10.2. Her mention of these concepts causes LeRoy to activate the nections representing the corresponding concepts in his system. LeRoy has in his cognitive system the concept of "buffalo chips" which is closely associated with the concepts "campfire" and "pieces of wood". "Pieces of wood" and "buffalo chips" are related as separate particulars/subdomains of a single domain that can be characterized as "what campfires can be made of". Activation from the concepts "pieces of wood" and "campfire", therefore, easily spreads along this association pathway motivating "the burning of buffalo chips" as topic when a new topic is needed. That is, information closely associated to already activated information is highly accessible.

The drawing of cognitive topic along such lines of association is common at those points in which one topic sub-area has neared exhaustion, as here, and another is needed. It may also occur before a sub-area has been exhausted, usually in cases where Lucinda's responses result in specific activations of closely associated information, as in this example.

'N thén we'd put- ((2)) ((Lu2A)) 34.1

Oh ^{3}sómethin^{2}-

I don't know ^{4}whát^{2}.

Gráss or- ((1))

Séem like (sh)

[

((Interrupts)) Do you remémber what the ^{3}**gráss** ^{1}looked like in the country 35

when you first got there^{1}?

'Oh it 'uz just great big ole tall ^{2}blúe ^{1}grass^{1}. ((Chuckle)) ((1))

Here Lucinda's mention of grass as a roofing material for a dugout house sets up LeRoy's topicalization of the concept "grass" in the following utterance. Cognitive topic may move out of a subarea in this way because, as mentioned above, subareas in a network are not discrete modules separated from the rest of the system. Instead, they have many connections elsewhere, and topic may potentially move along any of them given the right conditions. The tendency, however, is for topic to remain within the subarea because of the density and strength of the associations there.

3. Lingering activation. Later on in the same interview, LeRoy selects the notion of furniture as part of his cognitive topic in several different instances which are separated by the intervention of other topics.

((3)) What kind of ^{3}**fúrniture**^{1} did you have in the dugout^{1}? ((2)) ((Lu2A)) 23

Oh we had a bédstéad 'n-

... ((Talk about furniture, dugout construction, and prairie grass)). 24-36

What ^{3}**óther**^{1} **furniture** 'd you have in that dúgout in 'Erick^{1}? 37

You had a ^{2}béd^{2}- 'n a- ((3)) ((A "listing" intonation.))

The selection of "furniture" in 23 is partially motivated by its previous activation in 9 and 7b as cited above. Likewise, in 37 its motivation involves the previous discussion of dugout furniture which began in 23. Such recycling of topics occurs often in the data, particularly when a current topic is exhausted and LeRoy must come up with another one to keep the conversation going. This recycling can be accounted for as a facet of accessibility. Locations previously activated during the conversation remain weakly activated. The lingering activation primes the location for further topicalization, drawing topic back to it. There are several other subtopics within the "dugout" subarea of 23 and 37 that could have been produced as

topic here. This previous and lingering activation of "furniture", however, leads to its designation.

Summary of cognitive topic selection. Cognitive topic selection depends on the accessibility of the potential topic information in the cognitive system of the designator. Accessibility in turn involves factors of network structure and process such as local organization, lingering activation, and proximity of connection.[8]

The coordination of cognitive topic. Once LeRoy chooses a topic such as "the trip from Pottawatomie nation to Cloud Chief" that he wants to ask Lucinda about, he must let her know what it is. Topic coordination/recognition succeeds when the addressee activates the portion of his cognitive system that corresponds to the topically activated portion of the topic designator's system. When coordination is achieved, information exchange can take place.

Because the speech signal mediates between the separate cognitive systems of the interlocutors, the strategies used for this topic coordination are linguistically encoded and observable to analysts, as to listeners, in surface features of the text. In addition, an interlocutor's response to previous utterances by the other speaker gives an indication of the success with which he has interpreted the speaker's topic. Thus the overall effectiveness of the interlocutors' topic coordination strategies can be judged.

The discussion below explores several strategies of topic coordination and considers several cases of topic coordination breakdown. Just as the cognitive accessibility of information was seen to play a pivotal role in topic selection, here accessibility is seen to be important to topic coordination as well. More specifically, the less accessible a next topic is to the addressee, the less likely he is to recognize it and the more carefully the speaker must prepare him to interpret it. Sometimes the speaker misjudges the accessibility of a new topic in the addressee's system, and in these cases inadequate preparation for the change results in breakdowns in the communication.

1. In turn 1 of an interview with Lucinda, LeRoy designates the topic of "when Oklahoma became a state." In his linguistic encoding of this topic for Lucinda, he uses a number of strategies in order to help her locate the corresponding portion of her cognitive system.

Do you remémber mama anything about when Oklahóma became a státe?
Do you remember any of the tálk about it? ((Lu2A)) 1
Oh of cóurse I re^{3}mémber^{2} but^{2}- ((2))

One strategy is to restate the original question of 1a in 1b. This second formulation helps Lucinda in two ways. First, it provides more time for her to interpret the utterances and locate the topic in her system. Second, it gives her a slightly different approach to the topic than that given in the original formulation. In this case, in 1b, LeRoy provides the extra idea that what she remembers about "when Oklahoma became a state" might be "the talk".

LeRoy also uses sentence accent to draw Lucinda's attention to his topic. Within the topic phrase, both "Oklahoma" and "state" are stressed. This double accent marks this whole phrase as introducing a new topic that Lucinda should activate. A single stress would have been contrastive, having a quite different effect. The double stress directs Lucinda to identify the whole complex of nections representing "when Oklahoma became a state" in her system as topic.

Lexical resources are also used to help Lucinda identify topic. The word "about" is a clear indicator of topic. It is used throughout the corpus. The phrase "do you remember" is another often used lexical indicator of the speaker's cognitive topic. It alerts Lucinda to the imminent task of locating a certain topic in her system.

The use of the signals of paraphrase, multiple sentence stress, and lexical clues occurs repeatedly in the interviews and tends to cluster at points where new major topics are introduced such as at the beginning of an interview or at a point of major topic change. Such strategies are less commonly used <u>within</u> a general level topic where topic movement is more gradual and predictable (i.e. accessible). This distribution suggests that their purpose lies in effecting cognitive topic coordination. Lucinda's response in 1A makes it clear that LeRoy's efforts to communicate his topic to her have in fact been successful. That is, the strategies that LeRoy has used seem to work.

2. In turn 6 of the same interview, already cited above, LeRoy introduces the global topic of "when you were going from Pottawatomie nation to Cloud Chief".

When yóu all used to uh- 6

when you were góing from-((1))say Pottawatomie nátion-

to Clóud Chief ((2))

what did you- kíds do to pass the tíme away?

Huh?

How- wh- whát did you sít on in the wágon? 7

Did you have cháirs? ((1))

Oh- sómetimes we had a what we called a sprág seat.

One of his coordination strategies involves the use, as in 1a, of sentence accent on "you", "going", "nation", "Cloud", "kids", and "time" to mark part of the utterance as indicative of a new part of the topic in Lucinda's system. Another often used strategy involves the encoding of a general level topic first, and then of a more local topic within that general topic: "what did you kids do to pass the time away". The general topic encoded first gives Lucinda the information she needs to interpret the local topic. Conversely, the local topic gives her a specific starting place within the global topic. The opposite ordering does not seem as natural in this context and would not have been as easy for Lucinda to process.

There is a problem, however. In the case of Lu 2A:6, topic coordination does not succeed despite LeRoy's efforts. Lucinda fails in recognizing the topic, as shown in 6.1 where she asks for a repetition. Her trouble in recognizing the intended topic after such careful preparation presents a puzzle that warrants an accounting. Closer examination reveals an explanation. LeRoy's question in 7 and Lucinda's response in 7.1 show that Lucinda's misunderstanding in 6.1 involves the local topic expressed in 6d but not the global topic expressed in 6b and c. LeRoy proceeds on this assumption in his encoding of a local topic in 7 when he does not restate his global level topic. He does not repeat it because he believes that Lucinda has already recognized the global topic. And Lucinda's responses in 7.1 and more especially in subsequent utterances such as 9.1-4 (cited above) indicate that as LeRoy concluded, she did not in fact have trouble coordinating to the general level topic. For example, in 7.1 she does not ask which wagon LeRoy is referring to with the phrase "the wagon". In 9.1, her phrase "when we moved" indicates that she is oriented to the particular wagon trip of her youth that LeRoy has directed her to in 6b, and not to some other trip or about wagon trips in general. Concerning 6.1, therefore, it is clear that it was the local topic and

not the global topic that Lucinda had trouble recognizing.

Now the question concerns the reason she failed to recognize the local topic of "what the kids did to pass the time away". Within the global topic expressed in 6b and c, there are many possibilities for a more local topic. LeRoy could have asked who drove the wagon, for example, or who went on the trip, and these sorts of questions would have obvious answers strongly coded in Lucinda's system. Given the global topic, she would expect such questions. The subtopic he chooses, however, is much more vague and does not lead Lucinda along such obvious associations in her network. Lucinda's failure to coordinate is more a function of the vague nature of LeRoy's topic than of her ability to recognize topic given adequate coordination signals. Her difficulty correlates with the inaccessibility of LeRoy's intended topic in her cognitive system. When LeRoy selects a more accessible sub-topic in 7, Lucinda has no problem coordinating to it.

3. The speaker must constantly make judgments about the addressee's cognitive states and the accessibility to him of certain topics. As shown in the above example, the speaker sometimes fails in rendering his topic recognizable. In this example from an interview with his father, LeRoy in 29 selects the topic of "making sorghum taffy" in his system after exhaustive discussion of a clay-like substance called "keel" which Walter used as a child to write on a slate at school.

You could shárpen it up-turn it around any shape you ³wánted².((Walter3A)) 28.2

(you know) it just come in ³chúnks¹ and you- ((1))

you could ²cút it up²- ²stríp it up² 'n. ((2))

Did you all ever make sórghum ³táffy³? 29

Huh?

Did you all ever make sórghum ³cándy³? ((2)) 30

¹Yeah². Used to make sórghum ³cándy².

In LeRoy's system, the motivation for this topic seems to lie in a connection between the texture of keel and the texture of taffy. Walter is unsuccessful at 29.1 in recognizing the topic. In 30, therefore, LeRoy must continue his efforts to coordinate his new cognitive topic with Walter. The topic that LeRoy accessed in his system when he needed a new topic was not predictable to Walter, and because LeRoy did not make use of topic coordination strategies, Walter's coordination failed.

4. Returning to LeRoy's talk with Lucinda about the wagon trip to Cloud Chief, the following discussion takes a closer look at the coordination of the more

local topics that are expressed in utterances 8 to 13 (cited above). It would be expected that the coordination of these minor topics within a more global topic of "when you were going from Pottawatomie nation to Cloud Chief" would be relatively simple, and this is in fact what happens. LeRoy does not in these questions use many of the strategies that aid in coordinating a major topic shift. There are no overt lexical indicators of topic such as "about" or "remember". There is much less use of multiple sentence accent needed to mark totally new topics. There are no paraphrases as in 1. Yet Lucinda has no trouble recognizing any of these minor topics as she does in 6.1. or of interpreting them in the context of the global topic.[9] Like LeRoy's knowledge, Lucinda's is characterized by local organization. Once she has located LeRoy's intended global topic, more local topics within that subarea are highly accessible and do not require such careful marking.

It is important to note here that although the global topic of "when you were going from Pottawatomie nation to Cloud Chief" remains cognitively active for both interlocutors during all of turns 6-13, it is encoded linguistically only once, in 6. That the global topic remains active is shown by the orientation of the interlocutors. For example, Lucinda's answers in turns 6-13 concern the wagon trip although the trip is not mentioned in each question. In response to LeRoy's questions she does not ask questions such as "when we stopped to camp when?" or "what tent?"

This observation underlines a distinction between the notion of cognitive topic as it is conceived of here and the related notion of sentence topic as it has been traditionally viewed in linguistics. Views of sentence topic generally begin with the sentence or clause and expect to find the topic of a sentence expressed somewhere in that sentence. From a cognitive perspective, however, it becomes clear that not everything that a speaker is thinking about as he utters an individual sentence is encoded in that sentence. The topic of a sentence, that complex of information which must be activated to effect interpretation, may be expressed outside the bounds of the sentence, several utterances before, in several different places, and even then, it is never all expressed. Conversely, topical information expressed in one sentence may have scope over a large chunk of utterances.

Summary of topic coordination. Just as accessibility of information in LeRoy's network governs his selection of topics for the conversation, so does Lucinda's and Walter's ease in coordinating to a proposed topic follow from the accessibility of the

information in their systems. Likewise, LeRoy's judgments about the accessibility of his selected topic in their cognitive systems determine the kind of signals he encodes to help them achieve coordination.

Conclusion. In conversation, the shape and operation of the individual cognitive networks involved is responsible both for patterns of cognitive topic designation and coordination and for the resultant surface patterning of conversation topic in the text. For the analyst, the observable patterning of conversational topic provides an important window into these aspects of the activity of cognitive topic. Characteristics of next utterances and breakdowns such as disfluencies and misunderstandings give valuable evidence concerning the on-line processing of the interlocutors. Thus a cognitive approach to conversational data is important to an understanding of cognitive systems as well as to an explanation of the text.

Notes

[1] This paper reports some of the main points of a more detailed study. See Meyer, 1990, ch. 3 & 4 for a more extensive tracing and discussion of topic in an extended portion of conversation.

[2] See Levinson 1983, ch 6 for a full characterization of CA method.

[3] Space limitations prevent the discussion of these materials at a fine level of detail here. However, although only small portions of data can be cited, those chosen are representative of the entire corpus. The entire corpus amounts to approximately 2.5 hours of conversation and is transcribed in the appendix of Meyer 1990.

[4] It is important to note that LeRoy neither took nor used written notes during the interview. His cognitive processing proceeded without the influence of the written word.

[5] We distinguish "sentence topic" as commonly conceived from the notion of "conversation topic" or "discourse topic" that we have identified here. Most linguistic studies treat topic as a sentence and clause level phenomenon. This distinction is touched on again later.

[6] Within the cognitive linguistics framework, this dichotomy applies at all linguistic levels. For example, just as there is cognitive topic corresponding to discourse and sentence topic, there are cognitive representations of lexemes and phonemes that correspond to the lexemes and phonemes that can be identified in text data. Although the distinction is theoretically important, it is not always necessary for practical purposes to specify whether we are talking about the text entity or the cognitive entity which it reflects.

[7] Turn numbers are indicated at the right of the excerpt. LeRoy's utterances within a turn pair are placed against the left

margin and are identified in the text by letters (e.g. 6a, 6b). Lucinda's or Walter's utterances are indented in the excerpt and identified in the text by a decimal point followed by a number (e.g. 6.1). At the top of each excerpt, the notation in double parentheses indicates the interviewee (Lucinda or Walter) and gives the tape number and side which indexes the interview in the appendix to Meyer 1990.

[8] Other factors have been discovered also but are not dealt with here.

[9] There is some extra topic coordination work done in 10, but this is expected because it involves the introduction of another subarea nested within the "trip" topic. A subtopic, "when you stopped to camp at night" is used to introduce an even more local subtopic, "the chores the kids did."

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II

GENERAL LINGUISTICS

Linguistic Models of Irony

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Only very few linguistic models have been used to deal with irony, a pervasive feature of everyday speech. Linguists, psycho-linguists and psychologists have expanded the Speech Act Theory of Austin (1962) and Searle (1969), as well as the Gricean model. Based particularly on Grice's 1978 paper Further Notes on Logic and Conversation, several models emerged, predominantly the **Mention Theory** of Sperber and Wilson, 1981 and 1984, and the **Pretense Theory** of Clark and Gerrig, 1984. In the following, I will discuss these two models and compare them to a model that is set up to deal with all instances of irony. In recognition of the traditional approach, I will call this model the **Incongruency Approach**. Finally, I will show that my interpretation of irony as incongruence agrees with recent interpretations of language per se.

Instances of irony can be inherently more language-related (verbal irony) or more situation-oriented (situational irony). Verbal irony, which includes such figures as sarcasm and Socratic Irony, intends a second (or third, or fourth) reading or understanding -- a reading between the lines, so to speak. It requires knowledge of the context in order to be discovered. Specific cues appear in the text/discourse to set off an ironic interpretation. An observer recognizes the speaker's intention. If, for example, you tell a friend Good job after he has accidentally broken you favorite coffee-mug, then this statement will not have the effect of praise but rather of blame. The clues for the irony are found in the particular use of the language (in this instance, for example - intonation).

This is not to say that the instances of irony classified under Situational Irony, which traditionally includes dramatic, structural, cosmic and romantic irony, do not have a relationship to language. The agents of situational ironies, of course, can also use language. However, the situation, by means of setting and action, is juxtaposed to the

agents' expressions, and thus contributes to the irony in a primary way.

A given type of irony has to be seen in relation to the participants involved in the ironic instances. Traditionally, two participants, i.e., the ironist and the victim have been assumed, but following Freud (cf. 1948, Der Witz und seine Beziehung zum Unbewussten) and others, I want to include the audience as a third participant. Types of irony thus can be determined by the relationship of the three participants to each other and with the situation.

A concise definition of irony, unfortunately, proves to be impossible in principle, and I quote Enright (1986:7) in this respect: "It is unfortunate, it is even ironical, that for so ubiquitous and multifarious and, some say, alluring a phenomenon there should be but one word". Enright's observations arise out of the problematic nature of semantic change. The term irony had at first a limited, very specialized applicability. However, with time the focus of irony changed. Once exclusively a figure in rhetoric, it has also been applied to literature and used in secondary writings, at least since the Romantic era. Traditionally, of course, irony was exemplified by means of either the blame-by-praise or the praise-by-blame figures, as already stated by Aristotle.

In Logic and Conversation Grice views irony as the violation of the first maxim of quality, namely "do not say what you believe to be false", because irony changes the truth-value of a statement. Grice bases his maxims on the expectations shared by all participants. Expectations appear due to participants' experience with conversations in general, and prior interaction with the other participants in particular. The participants react when their expectations are not fulfilled. Participants do not generally agree on the aim and purpose of a conversation at all times. Imagine, e.g., a conversation that one participant attempts to jeopardize at each turn by the use of irony. Such violation may occur at any time, not only for ironic purposes but also due to personal idiosyncracies, misunderstandings, awkwardness, and cultural differences.

In general, Grice's maxims cannot adequately inform a discussion of a figure like irony, since he considers irony to be a violation of a purported norm. In "Further Notes on Logic and Conversation", Grice discusses irony more fully. He sees irony to be

"intimately connected with the expression of a feeling, attitude, or evaluation" (1978:124). This expression, he considers to be of a negative nature reflecting a hostile or derogatory judgment. "Each irony is characterized by its ironical tone, which is always contemptuous" (ibid.). Consequently, Grice considers irony used for a positive purpose, as exemplified by the traditional praise-by-blame figure, a rare occurence and rather an instance of playfulnes than of irony.

I find the idea of irony as violation to be very limiting. Violation implies that something is violated, here - the norm. Of course, there are norms, otherwise we would not be able to recognize different registers. These norms are culturally dependent. Grice's maxim of Quantity -- be brief -- e.g., would not be valid in a society that favors talk for talk's sake. Norms change with new requirements and technical achievements. Grice describes an ideal conversation void of references to actual spontaneous conversation. There can in fact be no violation of a putative Gricean norm. The notion of a stable norm is ultimately untenable.

In the same paper (1978), Grice, furthermore, proposes to explain irony by means of pretense. "To be ironical is, among other things, to pretend ... and while one wants the pretense to be recognized as such, to announce it as pretense would spoil the effect" (Grice 1978:125).

Thus, Grice's irony-as-pretense idea influenced subsequent treatments of irony. On the basis of Grice's suggestions, Clark and Gerrig (1984) propose the utterance-based **Pretense Theory of Irony**. The Pretense Theory was set up partly also in response to Sperber and Wilson's (1981 and 1984) **Mention Theory of Irony**, also utterance-based.

Pretense has traditionally always been a part of irony, Clark and Gerrig claim. The ironist pretends, for example, to be ignorant and slips into a new role (also a characteristic of Socratic irony). In this new role, he also leaves behind his own voice in exchange for a new ironic voice. Thus the Pretense Theory claims that "there is a natural account of the ironic tone of voice" (1984: 123). In his new role, the ironist fools his victims. Pretense Theory assumes two types of victims. "The first is ... the unseeing or injudicious person the ironist is pretending to be. The second is ... the uncomprehending audience not in the inner circle" (ibid.). Thus the recognition of an

instance of irony depends on the shared background knowledge of its participants.

Also the Mention Theory is based on the shared background knowledge but interprets this knowledge in a different way. Sperber and Wilson (1981) developed the Mention Theory in order to challenge the traditional approach. This theory was further developed by Jorgensen, Miller and Sperber, who argued

> that the meaning expressed in an ironical utterance is the literal one and no other. However, this literal meaning is not <u>used</u> by speakers to convey their own thoughts. Rather, it is <u>mentioned</u> as an object of contempt, ridicule, or disapproval. Conversely, the task of the hearer is to reconstruct both the literal meanings of the utterance and the attitude of the speaker toward that meaning (1984:112-113).

Jorgensen, Sperber and Wilson, tested their theory by means of little anecdotes, which can have an ironic reading:

The party was at the Clark's, but Joe didn't know where Mr. Clark lived.

"It's on Lee Street," Irma told him. [**"It's the house with the big maple tree on the front lawn.**] You can't miss it."

But Joe did miss it. He never would have found it if Ken hadn't seen him wandering down the street and led him to the Clarks' apartment. They lived over a store, and their apartment door was right on the sidewalk.

Irma was already there when they arrived. "You are late," she called to Joe.

"The Clarks have a beautiful lawn," he replied (1984:119).

The statement in brackets [] was not available to all test subjects. Therefore, not all the test subjects shared the same background knowledge or, in Mention Theory terminology, were not aware of the antecedent use. So, Jorgensen et al., arrive at the following: "The results tend to support the claim that people do not perceive an implausible non-normative utterance as ironic unless it echoes some antecedent

use, which is the outcome predicted by the Mention Theory of irony' (ibid. 118).

The main problem with these two theories are the following. Particularly the Mention Theory is too narrowly construed, i.e., it only covers a limited amount of instances. Joanna Williams (1984:127) criticizes the Mention Theory: "The very utterance that the subsequent, ironic utterance supposedly echoes, provides part of the necessary background information to define the target utterance as ironic". Both theories are utterance-based. Only negative (i.e., blame-by-praise) figures are counted. The Mention Theory is attitude based, whereas the speaker speaks with a different voice, namely, an ironic voice, in the Pretense Theory. Neither can account for situational irony.

My approach to irony is based on **incongruence**. In each instance of irony, we can find some incongruence. My use of the term incongruence should be understood as indicating a value-free divergence that coexists with the expected interpretation. Thus, I did not intend an 'irony-as-violation' interpretation. Even though each instance of irony can only be taken in its own context (i.e., specifically), the feature of incongruence emerges in all of the instances (i.e., generally). Hence, all instances of irony can be discussed from the perspective of incongruence.

Irony does not only appear at the word and utterance level but has to be understood as applying to the whole discourse, never isolated. The incongruence is produced on different spheres or levels of discourse:

- word level (e.g., juxtaposition of incongruous words)
- styles (e.g., juxtaposition of incongruous styles)
- intonation (intonational patterns belie the utterance)
- utterances in context (contrast of the interpretation of the utterance with the context (i.e., situational irony)
- contrasts of utterance with background knowledge

to name just a few.

The idea of incongruence includes opposition of a surface and an underlying reading but it does not necessarily attach a binary distinction to every word.

Looking at irony as an example of incongruence, we can construct the following scenario: In an ironic situation, a speaker mentions a literal meaning which is **incongruous** in relation to another. Incompatible elements are juxtaposed to elements of the same kind or to elements on other levels. This approach thus also accounts for situational irony. It includes all instances described in the Mention Theory and the Pretense Theory. It is a descriptive account of all instances, and not solely utterance-based.

In conclusion, I want to mention recent ideas of language that are at the basis of my account of irony as incongruence. Language has often been viewed as if it were an animated movie, consisting of a large number of frames. Each frame pictures a state. Put in sequence, however, the frames give us the illusion of movement. Linguists have attempted to identify these frames. As Hopper observes, many linguists would claim that we should not analyze discourse before we have successfully described all of the sentences of a language. Even in discourse-linguistics the belief persists that "structure pre-exists discourse" (1987:141). Friedrich contends that

> the cognitive, basic-meaning approach ... tends to lead research toward the study of fixed structures, towards stasis, rather than toward realization that language is partly chaotic as well as systematic in its sources and dynamic, that language is ultimately a question of flux and process (1979:449).

Thus the linguistic system does not exist apart from the speaker. Models of language need not be prescriptive or productive. Hopper considers it the linguist's task "to study the whole range of repetition in discourse, and in doing so to seek out those regularities which promise interest as incipient subsystems" (1987:142). Idioms, proverbs, cliches, formulas, for example, constitute cases of repetition in discourse. There exists no consistent level on which these regularities can be stated. Grammar does not exist before discourse, because

> in natural discourse <u>we compose and speak</u> simultaneously ... Grammar is ... not ... the only, or ... major, source of

> regularity, but instead, grammar is what results when formulas are re-arranged, or dismantled and re-assembled, in different ways (1987:145).

Any structure, any apparent regularity emerges from the discourse; it is not pressed upon it like a template. The linguistic system is not something "in which "exceptional" phenomena must be set aside as inconvenient irregularities" (ibid. 147). Stable features in grammar -- and they do exist -- may not form the sole basis of a grammar.

Brenneis states that "the meaning (which) can only be determined by going beyond the literal, further suggests the limits of some traditional approaches to language" (1987:499). As he would have predicted, I soon reached the limits of existing models of language in my attempts to describe irony. Such models do not yet account well for language change, for cultural influences and influences of other languages, for aesthetics, for the phenomenon of language play, or even, for fun with the diversity of language.

Irony is one figure of language (among many others) that cannot be described with the help of theories that are sentence- or word-based. It has to be seen in a much larger context which includes extralinguistic features as integral parts. Irony looses its punch when often repeated in the same form. It emerges as a figure which is fleeting and at all times changing but at the same time it shows stable elements in some instances.

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LINGUISTIC MODEL AND LINGUISTIC THOUGHT: THE CASE OF EITHER-OR THINKING

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> The postulation of objects as something different from the terms of relationships is a superfluous axiom and consequently a metaphysical hypothesis from which linguistic science will have to be freed.
>
> Louis Hjelmslev

If the "Sapir-Whorf Hypothesis" can be summed up in the simple statement "Language influences thought", then it has a corollary for science, "Notation influences scientific thinking".

Whether one's conception of the nature of language is responsible for the notation one uses or whether it is the other way around is a chicken-and-egg question. To take it seriously in these terms would be a type of binary thinking closely related to the either-or fallacy. In fact it has to work both ways, as the two interact: One's conception of the nature of language is responsible for the notation one uses; AND the notation one uses is largely responsible for one's conception of the nature of language. The corollary of the Sapir-Whorf Hypothesis concerns the latter half of this interaction. In linguistics, it concerns the influence of notation on thinking about the nature of language and about how the phenomena of languages are perceived, analyzed, and described.

Perhaps the most obvious example from recent linguistic history is generative grammar. Here we have evidence that the notation system, in most of its features, preceded the conception of language as a generative system; that little arrow had an influence that would have to appear nothing short of astounding to a Martian observer with little understanding of the vagaries of the human mind.

At a more general level we can point to the larger class of descriptive systems of which the ones used in the subschools of generative grammar constitute just a subset. This larger class includes all the various systems of symbols and rules used in linguistics -- so prevalent that those who view language as something other than symbols and rules are either unknown or are viewed as a quaint bunch of eccentrics. The most important conception that arises in the minds of those who use systems of symbols and rules is the illusion that languages have objects in them, things like phonemes, morphemes, words, and the like (an illusion, I am sorry to say, still shared by some members of LACUS, even though they have been hearing about a more sophisticated view at LACUS meetings from the first one to the present.)

Some linguists, having recognized the hazardous nature of notation, have proposed that the way to avoid its sinister influence is to just use an ordinary language like English. It has even been argued that ordinary language is most appropriate simply because it is, after all, language that we are talking about. This absurd line of reasoning would lead us also to aver that fireplaces should be built of wood since, after all, that is what they burn; that highway maps should be made of asphalt or concrete; that swimming pools should be built of water; and that refrigerators should be made of cold food. Rather, it is precisely because we are talking about ordinary language that we need to adopt a notation system as different from ordinary language as possible, to keep us from getting lost in confusion between the object of description and the means of description.

The other argument against the proposal of using ordinary language as a means of escaping from the unwanted influences of notation is that it is simply a non-solution to the problem; that is, not a solution at all. It is based on the fallacious notion that ordinary English is not a notation system. Of course, it is a notation system; and as such it should be evaluated using the same criteria that are applicable for assessing other notation systems. It turns out to be seriously faulty. Perhaps its most important defect, one shared with most other notation systems, is that it treats linguistic structure as made up of objects.

The view that a linguistic system is properly seen not as symbols or objects of any kind but as a network of relations was proposed long ago by Saussure, was elaborated by Hjelmslev (1943, 1960), and has often been given lip service by many other linguists, including Chomsky. A notation system to implement this approach was first publicly announced twenty-five years ago in a lecture at the 1965 Linguistic Institute at the University of Michigan. This notation system, relational network notation (Lamb 1966), is generally considered arcane and safely left on the fringes of linguistics. But after these twenty-five years, it is still not too late for those who have

so far failed to recognize its beauty that they have been missing out on something of value, which can free them from illusions about language.

It is a little strange that it is still necessary, as late as 1990, to make this argument. After all, as early as 1975, fifteen years ago, Bill Sullivan published a paper entitled "For the Umpty-First Time, Relationships, Not Things". But that and other papers by various authors were evidently not enough. What they have so far failed to demonstrate sufficiently is that doing linguistics with a symbol-based system can be hazardous to one's thinking.

To suppose that one can blithely go on practicing linguistics using ordinary English or other symbol-based notation systems is a mistake. If one fails to adopt a relational point of view, if one fails to realize that a linguistic system is a relational system, then one's thinking about language will be filled with illusions; one will make silly mistakes, one will launch silly arguments and waste time and paper writing them down.

To support that strong statement I choose here one kind of fallacious thinking in linguistics as an illustration of the hazards of doing linguistics without the benefit of a relational view supported by a relational notation. This type of fallacy may be called 'either-or thinking'. It involves the false assumption of a necessity to choose between two or more alternatives.

Some examples of either-or thinking in linguistics are (1) the question of whether the correct analysis is 'hamburg-er' or 'ham-burger'; (2) the attempt to choose one best analysis for the English form 'took'; and (3) Charles Ruhl's claim (e.g. Lacus Forum 1989) that such expressions as 'hit the sack' are not idiomatic since one can find a semantic relationship between this use of 'hit' and others.

Before looking more closely at these examples, let us briefly review what a relational network system is and then summarize the arguments favoring the view that a language is a relational network system.

A relational network system includes a type of structure together with certain processes. The structure is a network consisting of nections with their interconnections. Nections, which consist of lines and nodes, are the modules of which relational networks are formed. Some typical nection types are shown in Figure 1. The types of nodes widely known from the literature include OR and AND nodes. Less well-known is a third type intermediate between these two, the AND-OR node, which can be activated by more than one but less than all of its input lines, in accordance with its threshold of activation; it is represented in the notation as a semicircle.

The major processes associated with the network are:

(1) transmission of activation along lines and through nodes;

(2) bringing latent nections into active participation in the network;

(3) building new connections among nections already actively connected;

(4) changing activation thresholds;

(5) changing the strengths of connections.

Of these processes, (2) through (5) are concerned with learning, but (4) and (5) also operate in forgetting; and (1) is the major process involved in ordinary speaking and understanding.

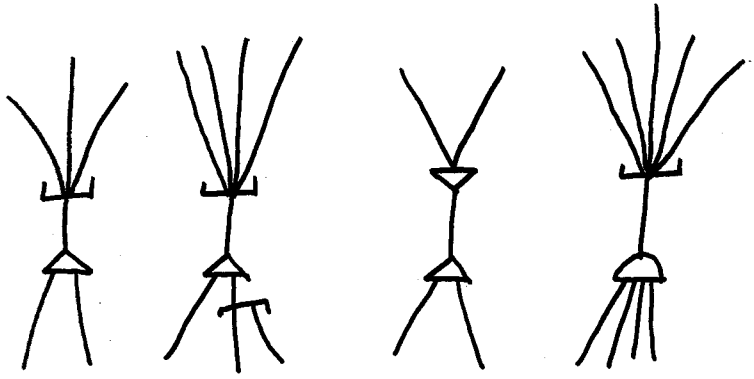


Figure 1. Some Typical Nection Types.

Now the assertion that a linguistic system is a relational network system requires a couple of qualifications and explanations. For one thing, it need not be considered applicable in 'hocus- pocus' linguistics. Hocus-pocus linguistics, most versions of which are also known as taxonomic linguistics, avoids supposing that there is such a thing as a linguistic system, as a reality. It concerns itself just with classifying various manifestations of linguistic systems, declining to say anything directly about the systems themselves. Although it has often been adversely criticized, taxonomic linguistics is a perfectly respectable pursuit. It deserves criticism only when

it makes statements to the effect that such and such IS so and so. It has no right to use the word 'is' in this way since it refrains from making claims about linguistic reality. To assert that a linguistic system has a certain form, or that a feature of structure 'is' such and such, makes sense only in a 'God's Truth' frame of mind.

By the way, generative grammar, despite its disclaimers, and despite its harsh statements about taxonomic linguistics, has never shown itself to be other than another form of taxonomic linguistics.

Now if there is such a thing as a linguistic system, it seems that the only place it could actually operate is as a part of a mental system. Such a mental system is either human or, some might claim, a computerized simulation of a human mind, or, some might claim, the minds of other intelligent beings such as angels or extraterrestrials, who may or may not be classified as human. Such possibilities need not concern us here if we can simply agree that for the present general state of knowledge the only place a linguistic system is generally known to be able to operate is in the human mind. In any case, that locus must surely be regarded as the primary one for human languages.

Thus a claim about the nature of the linguistic system is also a claim about the human mind. Unfortunately, the term 'mind' has various connotations to many people which are irrelevant to this discussion. To avoid the confusion that could be brought about by such irrelevant connotations, it might be better to use a more neutral term and to say just that a linguistic system is a part of the information system of a human being.

A further qualification is also in order: Along with the relational network system as briefly sketched above, there may also be one or more supporting substructures and/or processes in a more complete model of the human information system. Such adjuncts might include mechanisms both external and internal to nections. Thus it is not necessarily to be claimed that the relational network system as described by the network and the processes listed above represents the entire mental apparatus of the human being, nor that it in itself can account for all mental phenomena. On the other hand, it does seem reasonable to suppose that a relational network system as sketched above is the central and major component of the human information system and that any other components yet to be described, such as consciousness, are adjuncts to it and operate with it and upon it. Thus we may still call the overall mental system a relational network system, after its major structural feature, even though it may have subsystems other than those that have been described up to now.

We are now ready to review briefly some of the reasons for believing that the human cognitive system is a relational network system:

(1) It can't be a system of rules and symbols, or a system of symbols and "patterns", the only other possibilities that have been proposed. The mind does not have little internal eyes to read such symbols nor little internal pencils and pieces of paper to write and rewrite them with.

(2) The relational network model applies well to obvious cases, such as the transmission of activation from the retina to higher levels of the visual perceptual system, from higher cognitive levels to muscles, etc.

(3) The network model fits what is known about the brain from neurophysiology (cf. Konorski 1967).

(4) The network model helps to account for how children learn their native languages -- including phenomena otherwise mysterious and unexplained, such as their production of 'brang' as the past tense of 'bring' (Cf. Figure 2).

(5) The network model allows us to account for (1) unintended puns, (2) Freudian slips, (3) Freudian forgetting, and other phenomena involving association.

(6) The network model provides an explanation of the phenomenon of regularity of phonological change in historical linguistics, a phenomenon which has never been satisfactorily explained by any other means.

Let us now turn to some examples of either-or thinking in linguistics and show how the network approach helps to free one from its grip. Either-or thinking is one of several varieties of binary thinking which the human mind has a predilection for. It involves the illusion that one must make a choice between two alternatives of which both are in fact correct.

We may consider the examples mentioned above one by one.

First, the question of whether the correct analysis of 'hamburger is 'hamburg-er' or 'ham-burger'. If the word 'hamburger' is viewed as an object, then these two analyses are mutually incompatible. If we divide it into 'hamburg' and '-er', in accordance with its diachronic analysis, there is no longer 'burger' to go with 'cheeseburger', 'fishburger', 'steakburger', and

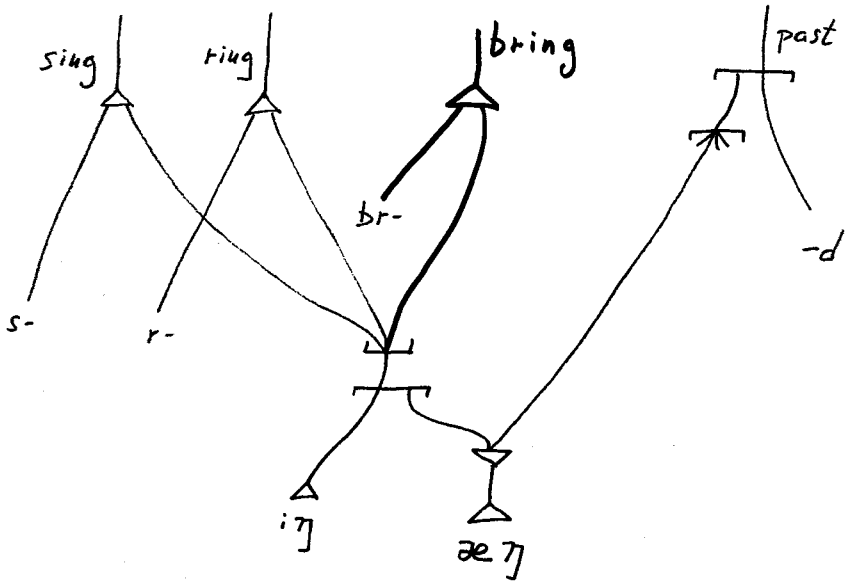


Figure 2. A child's nection for 'bring'.

so forth. Thus it appears that either-or thinking in this case is more than just one of the vagaries of human thought; it is aided and abetted by the illusion that the linguistic system contains such a unit as 'hamburger' as an object.

The relational approach, on the other hand, allows one to have one's cake and eat it. A network account is shown in Figure 3. This figure also uses lines of different weightings, the heavier for what may be presumed to be in most active use.

As our second example, let us consider the attempt to choose one best analysis for the English past tense form 'took'. Back in the fifties, this question was widely discussed and written about and was considered to have important theoretical implications (cf. Bloch 1947, Nida 1948, Hockett 1954). All the authors accepted as given that there could be only one correct analysis. All were operating within a view of linguistic structure as made up of objects ("items" in Hockett's terminology). Hockett considered three possible approaches to linguistic structure, all of them based on

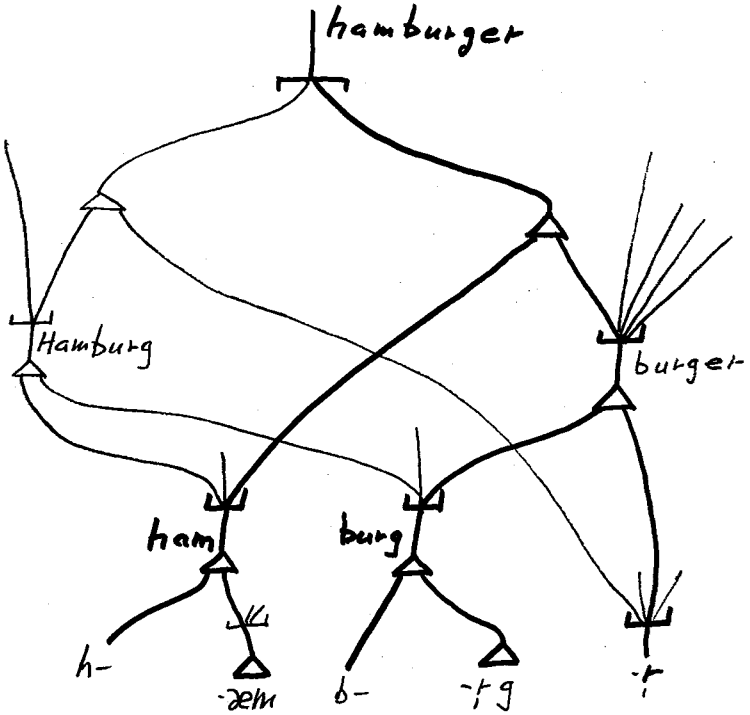


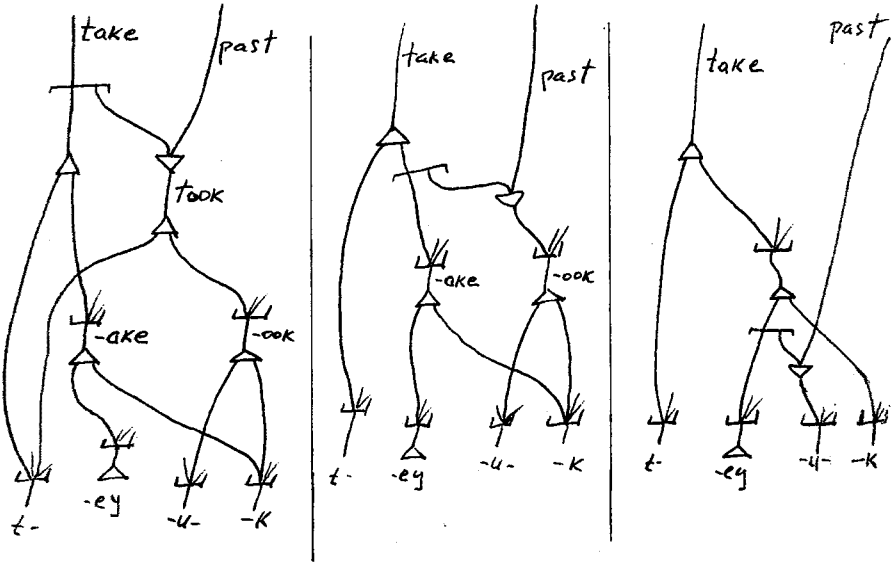
Figure 3. Coexistent catalyses of 'hamburger'.

objects: word and paradigm, item and process, and item and arrangement. All of them assumed items as fundamental to linguistic structure.

According to Hockett's summary of the possible analyses of 'took' (1954), it is either a portmanteau morph, or there is a process of replacement of one vocalic nucleus by another, a treatment considered to be possible only within an item-and- process framework; or the two separate vocalic nuclei are allomorphs of two different morphemes, present or past; or (Bernard Bloch's proposal), 'took' is an allomorph of 'take' conditioned by the past tense morpheme, which itself has a zero allomorph in this environment. Notice how each of these possibilities makes use of items.

Again we have two infelicities of human thinking working together to produce a silly result. First, the human mind is given to either-or thinking anyway, perhaps as an aspect of the principle of least effort. Second, the assumption that linguistic structure is made up of items supports either-or thinking, since one analysis using an item-based model precludes the other possibilities.

No such preclusion is possible, however, in a relational system. The demonstration of that fact is presented here in two steps. First, in Figure 4 we have three separate relational accounts; part (a) corresponds to the portmanteau solution of item and arrangement linguistics. Part (c) uses a pre-emptive vowel and shows that pre-emption is a type of OR relation and not a process of replacement: The preemptive vowel 'u' occurs INSTEAD OF the vocalic nucleus of the present tense; and such occurrence does not require that the nucleus of the present have previously been there, to be replaced.



(a) (b) (c)

Figure 4. Three catalyses for 'took'.

In Figure 5, we have all three catalyses of Figure 4 combined. It is reasonable to assume that the "portmanteau" treatment, that of part (a) of Figure 4, is the one in most active use. The two others represent observations that the assumed speaker is likely to have made; they could also be used to produce the form 'took' in case of failure of the heavier connections; and in comprehension, all three can operate in parallel.

As our third example, let us consider the argument of Charles Ruhl (e.g. 1989, 1990) that such expressions as 'hit the sack' are not idiomatic since one can find a semantic relationship between this use of 'hit' and others,

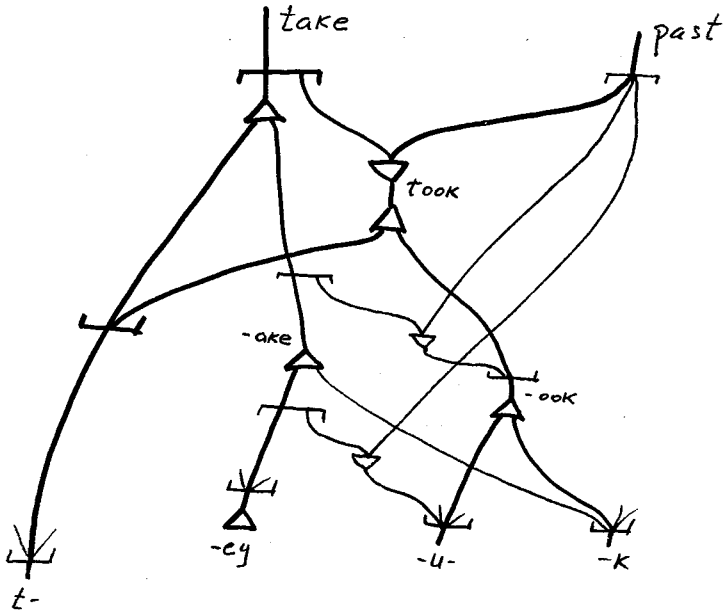


Figure 5. Coexistent catalyses for 'took'.

and since one can find 'sack' used for BED in other phrases, such as 'still in the sack', 'sack time', and so forth. According to Ruhl's mode of thinking, the fact that one can find such semantic connections rules out the possibility that 'hit the sack' is an idiom. On this basis Ruhl argues against Makkai (e.g. 1972) and others. But in fact the two views are not mutually contradictory at all. On the contrary, any description which fails to account for BOTH of the coexisting sets of relationships would be missing the cognitive reality. For it is to be expected that speakers of the language may have found semantic connections among the different uses of 'hit' (and among those of 'sack'), and therefore have such connections in their cognitive systems; and of course they also know the expression 'hit the sack' as a whole, having heard it and used it many times if they are typical members of our speech community. The relational catalysis is shown in Figure 6.

Similar to the case of the idioms involving 'hit' are various other claims too frequently heard in recent years. We have, for example, the form 'de' in Chinese, about which it can be argued either that there are three different units with the same expression or that there is only one 'de'. Both

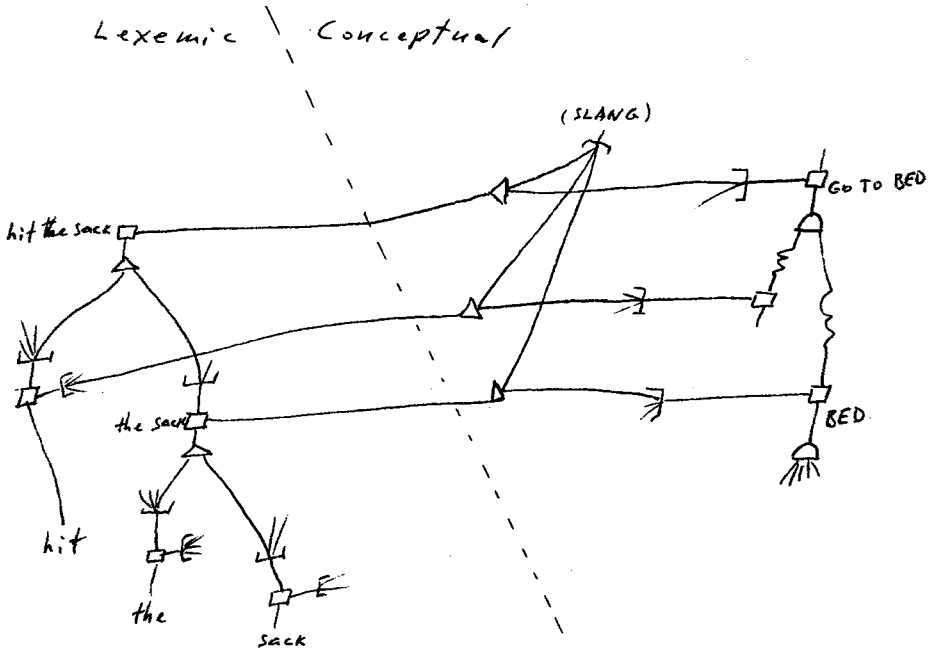


Figure 6. Catalysis for 'hit the sack'.

sides of this silly argument agree that there are three different grammatical functions. Also it is clear that, using the ingenuity of the linguist to find something in common between any two things, one can find some subtle similarity among the three functions. Those who champion the exercise of such ingenuity argue that there is only one 'de'. On the other hand, those who teach Chinese with any success at all teach that there are three different kinds of 'de'; it is essential for the student to realize this fact in order to be able to have an ability to speak and understand Chinese. Which of these two opposing views is correct? Of course, by now it will be clear that the two views are not opposed at all, a fact which becomes readily apparent as soon as one stops thinking of 'de' as an object.

Earlier in this paper there is a list of reasons for believing that the human linguistic system is a relational network system. We can now add one further reason: A relational model allows alternative analyses to co-exist and to operate in parallel, thus more accurately representing cognitive reality than is possible for object-based models.

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Continuous (Meaning) and Discrete (Form) in Language, Cognition, and Society

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As Wallace Chafe has observed, one difference between language and other animal communication systems, including the human gesture system, lies in the tendency of language to divide a continuous range of meanings into a sequence of discrete units. Chafe speculates that continuous communication systems are especially useful for conveying a continuous range of emotions while the discrete units of language serve in a complex multi-level process of "symbolization . . . the conversion of something from the universe of ideas or concepts into something capable of bridging the gap between sender and receiver" (Chafe, 1970: 19).

The notion that language developed out of emotive communication systems did not originate with Chafe. Swadesh (1971) posits a continuous evolution from animal communication to language. In Swadesh's view an earlier "exclamative" system bifurcated into a purely expressive and an "attention calling" or demonstrative system. Still earlier, Hockett, discussing the "design feature" approach to communication systems, pointed out that some gestures, e.g., finger pointing, could take on an infinity of graded forms, "but we do not make communicative use of this whole infinity" (1960: 145). Hockett argued "that sort of segregation of regions out of a physical continuum of possibilities is quantizing: it yields a repertory of all-or-none discrete signals" (1960: 145). While continuous gestures, Hockett says, as Chafe and Swadesh echo, are always iconic, discrete signals can be either iconic or arbitrary, and the "human tendency" is toward the discrete and arbitrary. "Language [Hockett says] . . . is wholly founded on discreteness" (1960: 146).

Earlier still, Edward Sapir, anticipating Swadesh and Chafe, had stated that

> language is not merely articulated sound; its significant structure is dependent upon the unconscious selection of a fixed number of 'phonetic stations' or sound units. . . .so that speech ceases to be an expressive flow of sound and becomes a symbolic composition with limited materials or units (Sapir, 1949: 8).

The notions that humans segment the continuous stream of experience into discrete units and that language is founded on this discreteness were widespread in the 1950's. Pike (1954-60) cited Sapir, Joos (1950), and Von Neumann (1951) on these points and introduces for the first time, as far as I know, in linguistics the metaphor of the digital computer, the ultimate in discrete processors: "Compare . . . the relationship of an analogical computer (with some characteristics of a continuum) to the digital computer (dealing with discrete elements)" (Pike, 1967: 94). Significantly, Pike quoted Von Neumann on the general tendency in human cognition to segment reality: "in almost all parts of physics the underlying reality is analogical, . . . the true physical variables are in almost all cases continuous. . . . The digital procedure is usually a human artifact for the sake of description" (Von Neumann, 1951: 27). More recently, Robert Hall wrote that "our experience of the universe is something which, in itself, is indivisible, and any division we set up on our experience--as the meanings of our language inevitably lead us to do--is of necessity conventional" (Hall, 1964: 229-230).

Von Neumann's linking of continuous underlying reality and discrete scientific description also characterized linguists' treatment of these topics in this period: "One of the basic problems which confront us in linguistics is the necessity of a theory and procedure for the analytical breaking up of a physical etic continuum into a sequence of discrete emic units" (Pike, 1967: 94). Or, as Zellig Harris put it, "utterances are stretches of continuous events" (1951: 25), and "the general methods of scientific technique are . . . associating discrete elements with particular features of portions of continuous events" (Harris, 1951: 22). As Hockett (1953) said, "the acoustician examines speech signals and reports that they are continuous. The linguist examines them and reports that they are discrete" (29).

It would make for a neat analysis if underlying reality were continuous and language quantized it into discrete elements, but in fact there is no evidence that all of reality is continuous, and there is considerable evidence that some aspects of language are continuous. As an aside, I must point out that I, like most linguists, have adopted a view of reality, or experience, or whatever it is that people talk about that is best described as "naive realism." Other, more sophisticated, conceptions of reality are possible. For example, coralline reality, sketched out in the recent work of Cathy Wheeler (1990), would probably cast doubt on many of our deep assumptions about the nature of the world as experienced. At the same time, the methodology-centered view that language at the etic level is continuous and that it is quantized at the emic level, a view which could, I think, be fairly ascribed to Harris and which appeared from time to time over the years in Pike's work, is, I believe, overly simplistic.

Whether reality is continuous or not, human cognitive faculties seem to work in part by quantizing it. But the continuous-discrete distinction cuts, I think, across the language-reality distinction, however useful that distinction may be, and across the etic-emic distinction. One might argue that the point I am trying to make is implicit in Pike 1967 and that it becomes explicit in Pike's later work, for example in Pike 1982, in the particle-wave-field orientation. Unless I am misreading Pike, however, the particle-wave-field orientation allows one to view a phenomenon from any one of the three standpoints. I shall argue here, though, that another three-way set of distinctions is more relevant to the continuous-discrete dichotomy and that humans have only a limited freedom to shift among points of view.

As Hockett (1953; all references are to Hockett 1977.) pointed out, speech signals are continuous, but human perception yields a quantized analysis of speech as a string of discrete segments. Even here there is variability among levels of quantization: speech can be viewed as either sequences of phones or as sequences of syllables. Each set of units is quantized, but the results are perceptually and cognitively distinct. The "layers of structure" (Fries, 1952) are different. As Liberman, et al, (1972) showed, humans possess an elaborate cognitive mechanism for "etic segmentation" (Pike, 1967) of the speech signal.

As postwar linguists pointed out, at the emic level speech sounds are strongly quantized. For the native speaker, every phoneme exists in a system where it is distinguished from every other phoneme in the system. Commenting upon vowel mergers, Trager and Smith stated that "in this matter of the identity for some speakers of bin and Ben . . . prelinguistic data are now available confirming . . . that one hears either . . . [I] or . . . [E], not something in between" (1951: 13).

But even in the 1950's there were aspects of language that resisted quantizing. Suprasegmentals, particularly stress and pitch, resisted attempts to quantize them into phonemes. While Trager and Smith (1951) could posit a few phonemes of stress, many linguists argued that this quantizing, though real, was not phonemic. Attempts to quantize intonation were even less successful: the best treatment of English intonation, for many purposes, remains today the contours posited in Pike (1945). Attempts to quantize pitch variations for tone languages were equally cumbersome. One could view the development of tier-based phonological analyses for tone languages, e.g., autosegmental phonology (Goldsmith, 1979) as yet another, more successful, attempt to quantize tone. Suprasegmentals are at best weakly quantized.

That all quantizing is not equally strong brings me to one of my central points: quantizing itself appears to fall along a continuum, with this continuum itself being more or less quantized into three regions. At

one extreme, we find quantizing of degree zero, with the most obvious examples being the acoustician's view of the speech signal and, to a slightly lesser extent, phenomena like intonation which are probably better represented graphically than by discrete symbols. Phonemes, syllables, morphemes, words, and sentences are much more strongly quantized: each unit in such layers is distinguished from all others. But there is a strong tendency in language, cognition, and society to more extreme quantization, to binarization or dichotomization. Pike (1967) referred explicitly to this tendency in his comparison of the human brain to a digital computer. Trager and Smith noted that "in our culture dichotomizing is very common" (1951: 87). Here, I shall refer to dimensions of language, cognition, and society that are weakly quantized, or not quantized at all, as continuous. Dimensions that are quantized into inventories of discrete entities in closed systems I shall call quantized. Things that are analyzed into binary systems I shall refer to as digitized.

That experience, language, and everything else are in some respects continuous, in other respects quantized, and in still other respects digitized is probably due to the nature of the human brain, which appears to be organized into modules (Gazzaniga, 1989), and which is capable of either serial or parallel processing (Kent, 1981). Swadesh speculates that "man's [sic] first precise counting" system was binary (1971: 183).

In language we can observe varying degrees of quantizing in all layers of structure. In the postwar period a number of linguists began to regard phonemes as composed of simultaneous bundles of distinctive features or components. Many linguists seem to have come to this view at about the same time, but the formulation that was to play an increasingly powerful role was that of Jakobson et al (1952), which was in turn adopted, with a few modifications, by Chomsky and Halle (1968). Nearly all distinctive feature analyses insist upon the ultimate digitizing of language into features which are either present or absent.

In morphology languages tend to be quantized: a morpheme is different, for native speakers, from every other morpheme. But linguists have also been tempted to see digitization in morphology. Witness the tendency of languages to have prefixes and suffixes, with infixes much less likely to occur. Consider also the general belief among linguists that derivational affixes are attached to words before inflectional affixes. Or the view among some generative phonologists that regular morphological processes, represented by morphological rules, apply before regular phonological processes, represented by phonological rules. This tendency to digitize processes can be seen in Parker's (1986) assertion that one and only one inflectional affix can be attached to an English word. How, one might ask, would Parker analyze a word like boys'? If inflectional affixes are present or not present, the

apostrophe in the written form of the word marks nothing. On the other hand, one can quantize the process and argue that one can attach both PLURAL and GENITIVE to an English noun and later reduce them to one sound by a phonological rule of geminate simplification.

In the lexicon the success of digitizing distinctive features to phonology led to widespread optimism that word meanings could be reduced to combinations of a relatively small set of semantic features. Success with limited areas of the lexicon, particularly lexical sets referring to kinship relations, e.g., Goodenough (1956), seemed to promise much for this approach. The quantizing-digitizing approach of Katz and Fodor's (1963) "markers" and "distinguishers" is an example of such thought.

But while word meaning certainly appears to be quantized, digitizing approaches have proved to be of limited value. When Lehrer (1974) has to resort to a feature [+/-crispy] we might suspect that a digitizing system is showing signs of strain. Furthermore, abstract nouns and, especially, verbs proved much less amenable to semantic feature approaches. If, following Katz (1972), we attempt to analyze the verb chase into features, we find that sentences like There is a policeman behind me and There is a policeman following me and There is a policeman chasing me all have quite different meanings, which are difficult to capture economically with binary features. Clearly, [be] behind, follow, and chase are related. Clearly, they represent quantizations of a semantic continuum. But this particular continuum resists digitization.

Basic color term vocabularies are another area of the lexicon where quantizing is strong but digitizing is absent. Numerous linguists have investigated color words. Swadesh (1971) showed that this area of the lexicon pointed up the indirect connection between language and experience. Gleason (1961) referred to the color spectrum in much the same way. Trager and Smith (1951) wondered about the connection between behavior and such areas of the lexicon. Berlin and Kay (1969) established that there is a small set of basic color terms from which each language draws its inventory. Berlin and Kay also established that comparable basic color terms refer to comparable regions in the visible spectrum. Furthermore, some regions of the spectrum nearly always get named, while others never receive basic color terms. Rosch (1973) showed that basic color terms are tied to "focal" areas in the spectrum. Mills (1980, 1984) demonstrated that English-speaking children acquired basic color terms in a developmental order predicted by Berlin and Kay's implicational hierarchy of terms. And Von Wattenwyl and Zollinger (1979) argued that all these facts can be explained by the opponent process theory of color vision, itself a strongly quantizing-digitizing system.

Basic color terms themselves are quantized: languages name only some regions of the spectrum. Humans are capable, as Swadesh

(1971) pointed out, of seeing more than just focal areas. All languages have inventories of secondary color terms to quantize, more weakly than basic color terms, nearly all the spectrum. Dale Sloat has pointed out that all languages provide for continuous reference to the spectrum. One can always refer to the name of a familiar object: Bring me an object the color of maple leaves in October. Such a way of designating a portion of the color spectrum is (nearly) infinite, nearly continuous. Sloat (personal communication) has called this "computing" a color value. Use of color terms Sloat called "storing" a color value. Use of the continuous "computing" procedure has the advantage of great precision--if used in a relatively small speech community. "Storing" color values has the advantage of portability over large speech communities.

At the level of sentence meaning linguists have tended to argue for strong digitizing of meaning. The proposition expressed by a sentence is either true or false. Facts are presupposed or not. States of affairs are entailed by propositions or not.

But it is in syntax that the human tendency to digitize has been the strongest among linguists. Bloomfield (1933) analyzed sentences into immediate constituents. On rereading Bloomfield one notes that "each time a sentence or a portion of a sentence is divided there are found two constituents" (Gleason, 1965: 52). "In English a layer of structure has usually only two members. Each of these members may of course be composed of several units, but on any single layer the immediate constituents of the structure of that layer are usually only two" (Fries, 1952: 264).

The rage to digitize reaches its peak in transformational generative grammar, though TGG syntacticians sometimes hesitate between digitizing and less strong forms of quantizing. Chomsky (1957) typically analyzes the phrase structure of English sentences into NP + VP, but many of the transformations in that volume refer in their structural descriptions to Auxiliary. In 1965 Chomsky was much clearer in analyzing English sentences into NP and Pred P. But in the most elaborately codified version of Extended Standard Theory syntax (Akmajian & Heny, 1975), a sentence is analyzed into NP - Aux - VP structure, and NP in turn, for example is analyzed as (Det) - (AdjP) - N - (PP/S'). However, the X-bar theory, as it is used in Government and Binding Theory, takes Chomskyan grammar back to digitizing. Here, X, a lexical category that heads a phrase, is dichotomized from X', which consists of X and its complements, which is in turn dichotomized from X'', which consists of X' and its specifier. A GB syntactician might argue here that this baroque procedure results from a more basic digitizing: "The level at which X-bar theory applies is D-structure" (Chomsky, 1985: 161). At S-structure, phrase structures of the sort found in Akmajian and Heny (1975) are to be found, with the dichotomizing of syntax into D-structure and S-structure itself being a kind of digitizing. Gleason wrote

that "in general the IC approach has insisted that MOST constructions have exactly TWO constituents" (1965: 163). Chomsky (1988) simply declares, as if he and his co-workers had discovered it, that the analysis of a sentence into something like a traditional subject-predicate structure rather than some less digitized structure is a well-established fact.

A few generative grammarians have explored the possibility of using "bush diagrams" to show multiple divisions (quantizing rather than digitizing) in syntactic or semantic structure (James Hoard, personal communication).

However, there are cases where the choice is not between continuous and quantized or quantized and digitized. Neither theoretical considerations nor descriptive convenience governs all such choices. Nor is it always the case that we can choose the standpoint from which we can view phenomena. In language, cognition, or social structure, there are times when our minds seem torn among continuous analysis, quantizing, and digitizing. Nowhere has this uncertainty been more apparent than in the generative grammarians' use of grammaticality judgments to settle questions of linguistic theory and description. Chomsky has always insisted that such matters be settled by referring to "clear cases." But clear cases have a habit of becoming murky when looked at closely.

Consider, for example, the sentences Bush is tall and Bush is President. Do the linguistic intuitions of the native speaker really tell her that tall is an adjective and President is a noun. How could such a native speaker arrive at such "intuitions" without appeal to structuralist "form classes?" Clearly, from President Kennedy's famous Ich bin ein Berliner we can see that predicate adjectives and predicate nominals are quantized a bit differently in German and English. Givon (1979) remarks on the problematic nature of adjectives and argues that there is a continuum: Noun - Adjective - Verb, which is based upon "time-stability," that different languages divide up differently. Gleason (1965) points out that we all assume that each word really belongs to a lexical category, but this is not true in any absolute sense. Givon (1984) translates the sentence Mi amigo esta enfermo as 'My friend is sick', while Mi amigo es enfermo is rendered as 'My friend is an invalid'.

The generative grammarian's competence-performance dichotomy becomes rather hard to maintain in the face of such data. But matters become even less clear. Givon (1979) points out that sentences like A man in the yard is asking for you, with referential-indefinite NP's as subject, is impossible in most of the world's languages. Most languages would require an "existential-presentative" sentence something analogous to the English sentence There is a man in the yard asking for you to express such messages. A few languages, most of them possessing long literary traditions, allow referential-indefinite subjects. That is, the decision to use a referential-indefinite subject sentence or an existential-

there sentence is a matter of performance in some languages and a matter of competence in others.

For another example consider my own unpublished (1975) work on grammaticality judgments of sentences with implicative verbs (Karttunen, 1971). A sentence like John persuaded Mary to leave the party commits the speaker, through the choice of a verb like persuade, to the truth of the embedded complement to leave the party. The great majority of English speakers insist that the sentence is grammatical, on one hand, and that she left, on the other hand. Denying the truth of the embedded complement: John persuaded Mary to leave the party, but she didn't leave leads to a large decline in grammaticality, but the sentence does not become completely ungrammatical for all hearers. Adding a because-clause containing a plausible reason for denying the complement John persuaded Mary to leave the party, but she didn't leave because the police arrived before she could go restores much of the sentence's grammaticality. That is, hearers' grammaticality judgments can be manipulated by varying the linguistic context that a sentence appears in, a fact that generative grammarians, driven by some force to divide the universe into grammatical and ungrammatical utterances, refuse to confront.

In semantics consider the sentence John managed to solve the problem, which, because the matrix sentence contains the implicative verb manage, entails that John solved the problem. While John didn't manage to solve the problem entails that John didn't solve the problem. But the sentence John didn't manage to solve the problem until I gave him a few hints once again entails that John solved the problem (James Hoard, p. c.).

At a higher level of analysis such switching of perspectives on quantization serves as the basis of many puns, jokes, double entendres, etc. Garden path sentences like the linguist's old chestnutThe horse raced past the barn fell depend for their effects on our being switched rapidly from one interpretation to another. Similarly, the double entendre in Bob Dylan's "I Shall be Free No. 10" turns on the hearer assigning one meaning to the word do in the phrase do the dog 'perform a dance from the early 1960's' and another meaning to do in did the cat instead.

At a still higher level, in sociolinguistics, Labov (1972) has shown that when the value of a linguistic variable exceeds a certain threshold, hearers tend to assign a categorial value to that variable in the speech of a given individual or group, disregarding the fact that individuals seldom if ever say the same thing the same way every time. Digitizing can interact with prestige norms to fool native speakers in their reports of their own practice, and linguists themselves can be fooled, too. Labov, et al, (1972) report that one speaker in a region where the merger of two vowel phonemes was spreading came to believe that he had the merger in his own speech. The linguist transcribing his speech also believed

that he merged the two vowels in question. Instrumental analysis, however, showed that this particular speaker maintained a small, but regular separation in the acoustics of these two vowels.

Hymes (1980) argues that there are "two complementary elementary functions" (1980: viii-ix), which he terms the "referential" and the "stylistic" functions. But later he argues that "language, from sound to style, is a complex of form-meaning covariation" [emphasis in original] (Hymes, 1980: 81). The dichotomization into "referential" and "stylistic" illustrates a universal tendency to digitize. Return to the "complex of form-meaning covariation" illustrates the refusal of portions of the world to be digitized. One could argue that the tension among continuous-quantized-digitized is a hallmark of human mental faculties, relying on older, continuous and later, discrete and still later, digitized ways of symbolizing experience.

Which brings us, finally, to our own procedures. In conducting work with linguistic consultants, the linguist frequently proceeds by asking the consultant questions like, "Can you say sentence X? Normally, we expect the consultant to say yes or no. As Gleason (1961) pointed out, at times the consultant will say things like, "Well, yes, we could, but we wouldn't," or "You could say that, but nice people wouldn't." This method of asking "Can you say X" has been one of our standard field practices for generations. With the move by generative grammarians to use themselves as language consultants, this procedure becomes problematic. For what are we doing when we ask our consultant, even ourselves, "Can you say X?" Elsewhere (Mills, 1978), I have argued that in such situations we are not, despite what generative grammarians think they are doing, asking for a simple grammaticality judgment. Instead, we are asking our consultant to perform the following act: "tell me if you can imagine a plausible context within which this sentence would not sound bizarre to a speaker of your language." Gauker (1990) argues that this is the way that Savage-Rumbaugh's (1986) chimpanzees have "learned language." Gauker speculates that the evolution of human language from animal communication and the acquisition of language by human children both develop from the ability to "create[causal] contingencies under which . . . commands may be efficacious" (Gauker, 1990: 45). The rush to digitize, especially within generative grammar, at times leads us to misunderstand our consultant's responses, even when we are our own consultant, sometimes with disastrous results.

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III

PHONOLOGY

THE INFLUENCE OF SYLLABLE STRUCTURE UNIVERSALS ON THE VARIABILITY OF INTERLANGUAGE PHONOLOGY

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One major methodological approach for studying language universals is to examine the structure of a representatively large and appropriately sampled range of languages to determine what properties they share in common (Comrie, 1989). In phonology such an approach has uncovered a number of important absolute and implicational universals. Absolute universals are properties inherent in all languages, such as the presence of oral vowels and simple open (CV) syllables. In contrast, implicational universals always involve at least two properties in a conditional relationship: if X then Y. For example, some languages have both voiced and voiceless obstruents whereas others have only voiceless obstruents, but no language has only voiced obstruents. Thus, the presence of voiced obstruents implies the presence of voiceless obstruents. In such cases, the implicated property is regarded as the less marked of the two.

Important insights from investigations of language universals have stimulated research into the possible relationship between universals and second language acquisition. What researchers in second language acquisition are interested in determining is whether language universals may be reflections of innate predilections that both first and second language learners bring to the process of language acquisition (Comrie, 1984 & 1990). One prominent hypothesis emanating from this interest has been the Markedness Differential Hypothesis (Eckman, 1977) which essentially claims that L2 learners will acquire less marked structures more readily than they will more marked structures, a hypothesis which has yet to be falsified.

Of the studies that have examined the relationship between language universals and second language acquisition, only a few have been specifically concerned with syllable structure (Anderson, 1987; Benson, 1988; Carlisle, 1988; Hodne, 1985; Sato, 1984; Tarone, 1980; & Tropf, 1987). Four of those studies have tested for a universal preference for the simple open syllable, the hypothesis being that since the CV syllable is the least marked syllable in natural languages, then it should occur in interlanguage independent of native language transfer. The evidence for this hypothesis has been far from conclusive. Tarone (1980) transcribed the English narratives of two speakers each of Korean, Cantonese, and Portuguese and found that the subjects modified 137 syllables or about 20% of the syllables that they produced, either through epenthesis, deletion, or the insertion of a glottal stop. Most of the modifications could be attributed to native language transfer; only 30 apparently were not, and were therefore interpreted as evidence for a preference for simple open syllables.

In a subsequent study to test a possible universal preference for the simple open syllable, Sato (1984), examined the spontaneous and informal English conversations of two Vietnamese children. Data was gathered at three different

points over a ten month period. Sato selected Vietnamese because reputedly over 81% of the phonemic syllables in the language are closed. Given that Tarone (1980) found that transfer was more prevalent in accounting for the syllable structure of the interlanguage than was any possible preference for the simple open syllable, speakers of Vietnamese offered an interesting case in that a transfer hypothesis would predict that the subjects would favor closed rather than simple open syllables in the interlanguage. Sato examined the production of two-member codas by the subjects and found that of the 489 two-member codas produced over the ten months, 363 were reduced (one member of the coda was deleted) and 61 were completely deleted. In other words, approximately 12% of the target syllables with two-member codas were pronounced as CV syllables.[1]

The third study examining a possible universal preference for the simple open syllable followed the same procedures used by Tarone (1980) and involved two native speakers of Polish which has syllable structures at least as complex as those found in English (Hodne, 1985). Hodne collected 666 syllables in an interview task and a narrative. The corpus of data contained 66 syllable structure errors; of those 11 were claimed to be nontransferable modifications that resulted in simple open syllables.[2]

In the most recent examination of a possible universal preference for the simple open syllable, Benson (1988) taped two adult native speakers of Vietnamese and found that from 537 target closed syllables, 92 were modified towards CV syllables. Only 11 of those CV syllables could not be attributed to transfer.

What these four studies have revealed and what the authors agree on is that transfer is the primary process involved in modifying the syllable structure of the interlanguage. However, they provide little evidence for a "universal" preference for the simple open syllable. The reason that the evidence may appear so slight is that Tarone probably overstated her case ten years ago. Because the CV syllable is the maximally least marked syllable in natural languages, Tarone seems to have assumed that syllable modifications in the L2 would most naturally result in CV syllables, but syllable structures fall along a continuum of markedness, a matter of more or less marked rather than marked and unmarked. This being true, it would not be necessary for an L2 learner to produce simple open syllables in order to demonstrate that language universals were an influence. If L2 learners produce less marked structures, rather than the least marked, independent of language transfer, then linguistic universals can reasonably be claimed to be an influence. For example, if L2 learners whose native language has only CV syllables produce a CVC syllable instead of a CVCC target syllable, they have not only produced a syllable not found in their native language, but one that is also less marked.

A study with far less controversial results was conducted on the length of onsets and codas (Anderson, 1987). Anderson examined the casual conversation of 29 speakers of colloquial Egyptian Arabic, and ten speakers each of Amoy and Mandarin Chinese. In general, all groups of subjects made significantly more modifications (either by deletion or epenthesis) of both onsets and codas as their length increased, an expected result given that the markedness of onsets and codas both increase with length (Cairns & Feinstein, 1982; Greenberg, 1965; Kaye & Lowenstamm, 1981; Vennemann, 1988). A second notable finding was that when

the length of onsets and codas was held constant, the subjects made significantly more modifications of codas than of onsets. Sato (1984) and Tropf (1987) also found that their subjects much more frequently modified two-member codas than two-member onsets. A simple explanation for these findings is that two-member codas are more marked in relation to two-member onsets. In their theory of markedness for the syllable, Kaye and Lowenstamm (1981) have demonstrated that closed syllables are more marked than open syllables and that consequently if onsets and codas have the same number of segments in them, the latter will always be more marked than the former.

Another study has specifically examined the production of onsets which are in a markedness relationship with one another (Carlisle, 1988). As previously described, the markedness of onsets increases as their length increases, and Anderson found that this increase of markedness influences the production of onsets, longer onsets being more frequently modified than shorter onsets. However, onsets can be in markedness relationships irrespective of their length (Greenberg, 1965). In other words, if the length of onsets is held constant, onsets can still be in markedness relationships based upon the segments that occupy the positions in the onsets. One of Greenberg's examples was the implicational relationship between obstruent-liquid onsets and obstruent-nasal onsets, the latter presupposing the presence of the former and therefore being more marked. From Greenberg's work, Carlisle hypothesized that the onset /sl/ in English should be less modified than /sn/ and /sm/. Fourteen native speakers of Spanish each read 435 topically unrelated sentences, each containing one occurrence of the three onsets. Because the environments before these onsets influence the frequency with which Spanish speakers modify the onsets, (Carlisle, 1991), a reading instrument was used to control for the number of times that the environments occurred before each one. The results of the study indicated that the Spanish speakers, modified the /sl/ onsets significantly less frequently than they modified the /sm/ and /sn/ onsets as hypothesized.

In another study, Tropf (1987) examined the frequency of the the modification of syllables in interlanguage according to whether they abided by the Universal Canonical Syllable Structure (UCSS). Some researchers have noted that there is a (UCSS) for onsets and codas based upon sonority (Cairns & Feinstein, 1982; Hooper, 1976; Kiparsky, 1979; Selkirk, 1984; Vennemann, 1988).[3] Onsets and codas abide by the UCSS if there is a continuous rise in sonority from the most peripheral member of both structures through the nucleus of the syllable. The UCSS is not an absolute universal, but rather a universal tendency, as some languages do have language-specific syllable structures that violate the UCSS; however, such structures are exceptional. To examine whether the the frequency of the modification of onsets and codas depends upon whether they abide by the (UCSS), Tropf (1987) examined the production of these structures in German by 11 adult native Spanish speakers in actual conversation, finding that there was a tendency for onsets and codas that abided by the UCSS to be less modified than those that did not abide by it.

Unfortunately, there were a number of problems with Tropf's study. One problem was the exclusive use of conversational data in an initial study as there was no means available for controlling the environments that appear before the

onsets; it is now known that different environments induce different frequencies of modification of onsets (Carlisle, 1991). A second problem with the study was that Tropf examined two-member and three-member onsets together and collapsed the data from both into one result. Such a procedure assumes that two-member and three-member onsets are equally modified, a hypothesis that has yet to be actually demonstrated. A third problem was that no statistical test was performed on the data, thus all claims from the study are statistically unsubstantiated. Unfortunately, there is no other study anywhere in the literature that has examined whether the frequency of the modification of onsets depends upon whether the onsets abide by the UCSS.

Purpose

Given the importance and strength of the UCSS and the interest by applied linguists in determining the role of language universals in the acquisition of a second language, a study was conducted to determine if native Spanish speakers would modify English two-member onsets that abided by the UCSS less frequently than they would onsets that did not abide by the UCSS. The onsets selected for investigation were /sl/ and /st/ respectively.

Onset Structure in English and Spanish

All languages have a set of language-specific syllable structure conditions which generate well-formed onsets. The syllable structure conditions of English generate two sets of 33 two-member onsets. The first set consists of an obstruent followed by an oral sonorant and the second set consists of /s/ followed by a non-continuant (Clements & Keyser, 1981). In contrast to English, the syllable structure conditions of Spanish generate approximately 12 onsets, the first member of which must an obstruent and the second an oral consonantal sonorant (Harris, 1983).

The inventory of onsets of English and Spanish thus differ in two important manners. Not only does English allow onsets of the form /sC/ such as /st, sp, sk, sl, sm, and sn/, it also allows some onsets that violate the UCSS--/st, sp, and sk/. As a consequence, when Spanish speakers learn English, they are confronted with some onsets that violate both the syllable structure conditions of their own language and phonological universals. Ample evidence exists to demonstrate that Spanish speakers primarily modify /sC/ onsets by inserting a vowel before them (Carlisle, 1988 & in 1991; Tropf 1987). Such behavior is explained in that Spanish speakers regard the /s/ of /sC/ onsets as extrasyllabic consonants and transfer a rule of epenthesis from Spanish that inserts a vowel to which the extrasyllabic consonant can resyllabify (see Carlisle, 1991 for details). Because Spanish speakers modify English /sC/ onsets in an easily recognizable manner and because some of those English onsets violate the UCSS, Spanish speakers are excellent subjects for determining if onsets that abide by the UCSS are less frequently modified than those that do not abide by it.

Hypotheses

A number of previous studies have provided enough evidence about epenthesis in interlanguage phonology so that some specific non-null hypotheses could be formulated.

1. The correlation between the environments before /st/ and /sl/ will be positive and significant.

2. The proportion of epenthesis after consonants will be significantly greater than the proportion of epenthesis after vowels.

3. The proportion of epenthesis before /st/ will be significantly greater than the proportion of epenthesis before /sl/.

4. The interaction effect between environment and onset will not be significant.

Recent work by Carlisle (1991) has demonstrated that correlations among environments before different onsets of the form /sC/ have been both positive and significant. The same study also revealed that epenthesis is significantly more frequent after consonants than after vowels. Carlisle's study thus provides justification for the formulation of the first two hypotheses. Some weak evidence for the third hypothesis comes from the findings of Tropf (1987) discussed above. Finally, the fourth hypothesis merely asserts that the same pattern of epenthesis will occur after the environments before the two onsets even though the frequency of epenthesis may be significantly different before the two onsets.

Methodology

Subjects

The subjects of the current study were 11 native Spanish-speaking adults. Eight of the subjects were students in ESL classes at Bakersfield Community College. The three other subjects were students at California State University, Bakersfield, two of whom were in ESL classes at the time of data gathering. The other had previously completed her ESL requirements. None of the subjects had ever lived in a place where the language of daily discourse was other than English or Spanish. Seven of the subjects were female and four were male.

Data Gathering

Each subject read a reading instrument consisting of 290 sentences. Each sentence contained one occurrence of a word-initial /sl/ or /st/; 29 different environments occurred exactly 5 times before each of the two onsets. The environments were controlled because recent research had revealed that the frequency of epenthesis before /sC/ onsets by native Spanish speakers is conditioned by environment, epenthesis occurring significantly more frequently after consonants than after vowels (Carlisle, 1991). Subjects were taped in a quiet office between September and December of 1989.

Transcription and Reliability

Two investigators, the researcher and another faculty member with training in linguistics and experience in phonetic transcription, independently transcribed the relevant sections of the eleven tapes. The relevant sections were the environment preceding the onsets, the onsets themselves, and the presence or absence of the

epenthetic vowel. The two sets of transcriptions were then compared, and the two transcribers relistened to any items on which they had originally disagreed and were permitted to change their transcription if either felt that their original response had been incorrect. The original cumulative agreement between the two raters was .814, and the final agreement was .982. The 58 items that the two raters finally could not agree on were eliminated from statistical analysis; also eliminated from the statistical analysis were 135 items that the subjects read in such a way that the hypotheses could not be investigated: At times some subjects left a distinct pause between the environment and the onset; at other times the subjects misread either the word containing the original environment or the onset; finally, a small number of items were simply too distorted. In total 193 items were eliminated leaving a corpus of 2997 items for statistical analysis.

Analysis

Two statistical procedures were calculated on the data, a one-tailed Pearson product-moment correlation to determine if the pattern of epenthesis was similar after the 29 environments before the two different onsets, and a 2 x 2 ANOVA with environment and onset as independent variables and frequency of epenthesis as the dependent variable.

Results

The correlation between the 29 environments before /st/ and /sl/ was significant ($r = .578$, $p<.001$). This result fails to falsify the first hypothesis of the study and confirms previous findings that the pattern of epenthesis after environments is similar before all /sC/ onsets regardless of what segment occupies the second slot in the onset (Carlisle, 1991).

Table 1

Mean Proportion of Epenthesis After Environment and Before Onset

	Mean	SD
Environment		
Consonant	.343	.103
Vowel	.221	.123
Onset		
/st/	.360	.126
/sl/	.251	.093

The 2 x 2 ANOVA produced significant results. As can be seen from Table 1, the mean proportion of epenthesis after consonants was greater than the mean proportion of epenthesis after vowels. This difference resulted in a significant main effect for environment, $F(1, 54) = 19.93$, $p<.0001$. This result confirms the finding of two independent studies that found that epenthesis is significantly more frequent after consonants than after vowels before the onsets /st/, /sp/, and /sk/ (Carlisle, 1991).

Table 1 also reveals that the mean proportion of epenthesis before /st/ is greater than the mean proportion of epenthesis before /sl/. This difference produced a significant main effect for onset, $F(1, 54) = 14.35$, $p<.0004$. Thus, the frequency of modification of the onset that violated the UCSS was significantly greater than the frequency of modification of the onset that did not violate the UCSS.

The interaction effect was not significant, $F(1,54) = .30$, $p>.58$, indicating that environment influenced epenthesis in the same manner before the two onsets.

Discussion

None of the four hypotheses in the current study was falsified. As expected, the correlation between the environments before the two onsets was both positive and significant which reveals that the pattern of the environments is similar before the two distinct onsets. In addition, epenthesis occurred significantly more frequently after consonants than after vowels indicating that the influence of environment on epenthesis is independent of the influence of the onsets. Both of these findings are in accordance with the findings of previous studies (Carlisle, 1991), and confirm that environment is an important consideration in any study of phonological variability even though it has been neglected in most previous research in interlanguage phonology, especially in research that has examined the possible influence of phonological universals (Anderson, 1987; Benson, 1988; Broselow, 1983 & 1984; Sato, 1984; Tarone, 1980; Weinberger, 1987).

The major finding of the study was that epenthesis occurred significantly more frequently with /st/ than with /sl/. Given that these two onsets differ from each other on whether they abide by the UCSS, the findings would seem to indicate that the difference in the sonority relationships between the two consonants that constitute each onset was the determining factor. Some previous research provided additional evidence for this interpretation. Carlisle (1991) examined the frequency of epenthesis before /st/, /sp/, and /sk/. All three of these onsets violate the UCSS, and they are not in a markedness relationship with one another. The frequency of epenthesis, therefore, should not have been significantly different before the three, and it was not. The results of the current study then would seem to indicate that the UCSS was the determining factor.

Some other research might further support the conclusion above. As mentioned previously, Carlisle (1988) found that less marked onsets were less frequently modified than were more marked onsets. Specifically, native Spanish speakers used epenthesis significantly less frequently before /sl/ onsets than before /sm/ and /sn/ onsets. The two onsets examined in the current study are also in a markedness relationship. Many languages, perhaps most, have only onsets that abide by the UCSS; other languages have onsets that violate the UCSS, but they will have more

onsets that do not; and no language has only onsets that violate the UCSS. Thus, onsets that abide by the UCSS and those that violate it are in an implicational relationship: The presence of onsets that violate the UCSS implies the presence of onsets that do abide by the UCSS.

A final point to make about the current findings is that two sets of constraints interactively influenced the frequency of epenthesis, the preceding environments and the sonority relationships of the segments comprising the onsets. Because consonants induce a greater frequency of epenthesis than do vowels and because onsets violating the UCSS induce a higher frequency of epenthesis than do those not violating it, epenthesis should have occurred most frequently after consonants before /st/ and least frequently after vowels before /sl/. This is exactly what happened; the mean proportion of epenthesis after consonants before /st/ was .402 whereas it was .177 after vowels before /sl/. However, a question remains as to which set of constraints is more powerful; this can be determined through an examination of their rank order (Wolfram & Fasold, 1974). If epenthesis occurs more frequently after consonants before /sl/ than after vowels before /st/, then environment is a more powerful factor in inducing epenthesis than is the sonority relationship among the members of the onset. Conversely, if the frequency of epenthesis is greater after vowels before /st/ than after consonants than before /sl/, then the sonority relationship is the more powerful factor. As it turned out, environment had a slightly greater influence in inducing epenthesis as the mean proportion of epenthesis after consonants before /sl/ was .284 whereas it was .266 after vowels before /st/.

Implications

The results of this study have implications for the validity of some frequently cited research in interlanguage phonology. Anderson (1987) in a test of the Markedness Differential Hypothesis found that speakers of Colloquial Egyptian Arabic, Mandarin Chinese, and Amoy Chinese more frequently modified English two-member onsets than they modified English one-member onsets. Because two-member onsets are more marked than one-member onsets according to typological markedness, Anderson claimed that her findings supported the Markedness Differential Hypothesis. However, by definition all one-member onsets abide by the UCSS whereas some two-member onsets can violate the UCSS. Consequently, Anderson's results are questionable because of the presence of a confounding variable: The onsets that she examined differed not only in their length but also in their pattern of sonority. In order to validly test the MDH by examining the length of onsets, it will be necessary to compare two-member and three-member onsets because each type can violate the UCSS. In English, for example, a valid test would be between /sp/ and both /spr/ and /spl/ as all three violate the UCSS, thus sonority patterns can be held constant and no longer confound an investigation on the effect of length. Such a study is currently underway (Carlisle, in progress).

Another implication from this study involves what it means to simplify either a complex coda or onset. Researchers have not considered a sound substitution in a coda or onset as a means of simplifying those structures. If by simplifying, however, we mean a decrease in markedness, then a sound substitution could simplify a coda or onset if a structure were created that either abided by the UCSS (provided the original violated it) or created a more preferred syllable structure.

Vennemann (1988) has demonstrated that diachronic changes in the syllable structure of natural languages often involve, not the deletion of a segment in an onset or coda, but rather the substitution of a segment that would put the resulting structure more in conformity with syllable structure preference laws. For example, in many onsets that Italian once had of the form /Cl/, the liquid was weakened to a glide. This change is in accordance with part (c) of Vennemann's Head Law (13-21) which states that an onset is more preferred, the greater the rise in sonority from the most peripheral member of the onset through the nucleus. If such a substitution were to occur in interlanguage phonology, it would also produce a more prefered structure, even though it may not be the least marked structure.

Conclusion

Variability is a well recognized feature of interlanguage phonology, and a number of researchers have adequately demonstrated that environment influences the frequency with which different variants of a variable occur (Carlisle, 1991; L. Dickerson, 1975; W. Dickerson, 1976). However, even though these studies have revealed that variability is systematic, they have done little to illuminate the reason that some phonological structures are modified less frequently than others. In contrast, other studies have attempted to investigate the influence of syllable structure universals; such studies have found that less marked structures are modified less frequently than are more marked structures (Anderson, 1987; Sato, 1984; Weinberger, 1987) and have thus begun to identify reasons for at least some instances of variability in interlanguage phonology; however, at the same time they have essentially ignored the effect of environment. What the current study has revealed is that whereas phonological universals do have an influence on the variability of interlanguage phonology, that influence is in turn modulated by environment. Unless researchers consider the interactive effect of both factors in future investigations, our knowledge of the variability of interlanguage phonology will be incomplete.

Notes

[1] What is not clear about Sato's study is her failure to examine the production of syllables ending in a simple coda or to even explain why such structures were not examined. If the purpose of the study was to examine a possible universal preference for the open syllable, then Sato should have examined the possibility that subjects were deleting simple codas which would have left a CV syllable provided that the target syllable was CVC to begin with.

[2] Even though Hodne claimed that only 11 modifications occurred "which show clear change(s) of syllable structure toward an open CV pattern" (414), she may have overstated her case. In Table 6, she cites seven cases of a glottal stop being inserted before a vowel. Six of these cases, however, do not result in a CV structure at all as claimed, but rather in CVC(C) structures.

[3] Cairns and Feinstein (1982) do not make explicit reference to the Sonority Hierarchy in their treatment of markedness and syllable structures. Nevertheless, they do recognize that onsets violating the UCSS are somehow 'exceptional'; they are treated as having premargins and are regarded as marked in relation to syllables

with onsets that do not have pre-margins. Vennemann also does not mention sonority, but he does have a Consonantal Strength Hierarchy which essentially achieves the same purpose.

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THE CAUSE OF SIBILANT ASPIRATION IN BRITISH

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Sibilant Changes in British

As pointed out at the Fifteenth LACUS Forum (see Griffen 1989), the change of the British sibilant [s] to [h] led to several patterns of provection (or fortition) among the obstruents in [s] clusters. The effects on clusters aside, however, there remains a basic question: What caused the aspiration of [s] in the first place?

According to Jackson (1953 -- compare, however, Lewis and Pedersen 1974:16-18 and Morris Jones 1913:133-35), there were three environments in British affected by the sibilant aspiration:

(1) By the second half of the first century (A.D.) the sibilant had disappeared from absolute internal position (Jackson 1953:521-25), leaving a glide in its place. This change was so rapid that "there is not much real evidence that such a stage as -h- existed here at all, between Σ and the total hiatus filled by i̯, though presumably it must have" (Jackson 1953:521-22). The evidence for the aspirate stage is derived from the fact that British *isarno- 'iron' gave forms in all the British languages with initial [h] -- Welsh haearn, Old Cornish hoern, Breton houarn. This [h] may have arisen from the metathesis of the aspirated sibilant as follows: *isarno- > *iΣarno- > *iharno- > *hiiarno-. Jackson himself notes, however, that the alternative analysis *iΣarno- > *Σiarno- would also have been possible, preparing the word for the later sibilant aspiration in the initial position.

(2) Next, [s] changed to [h] in the initial position of the second part of compounds. For example, the fourth-century Anonymous Geographer of Ravenna (see Richmond and Crawford 1949) includes such names as Leugosena, in which the second element of the compound is the appropriate form of *seno- 'old'. This contrasts with the late sixth-century form MAVOHE(NI) probably from *Magusenos 'Old Lad', in which the [s] had aspirated to [h] (see Jackson 1953:521). The change was probably complete by the middle of the sixth century.

(3) Finally, [s] changed to [h] sporadically in word-initial position. For example, the British river name Sabrina 'Severn' is realized in Welsh as Hafren. From such names, it can be determined "in broad terms that initial British Σ- became h- by the middle or second half of the sixth century" (Jackson 1953:521), although the Σ- stage appears to have been reached as early as the second half of the first century. The change in initial position, however, was inconsistent, resulting in such pairs as Welsh sil 'spawn' but hil 'offspring', sedd 'seat' but hedd 'peace'.

Sibilant Aspiration

The most straightforward approach to sibilant aspiration concen-

trates upon the latter two changes from [s] to [h]. The previous change from [s] to [j] was completed well before the others and may not have involved aspiration at all.

The sibilants aspirated in the initial position of the second part of compounds before the corresponding sibilants aspirated in word-initial position. For example, the name MAVOHE(NI) contained the element -hen- 'old' in its aspirated form at the same time that the unaspirated *seno- 'old' was the root of the corresponding word. This suggests a mutation -- a common occurrence among the British languages.

Since the British mutations occurred along the fortis-lenis scale, such a mutative change would most likely have involved either provection or lenition. As pointed out in Griffen 1985:chapter 5 (see also 1975:chapter 10), the phonetic parameter for such fortis-lenis alternations in Welsh has been aspiration, with a heightened degree of aspiration involved in provection and a lowered degree in lenition.

The simplest explanation for sibilant aspiration would indeed be provection -- the more aspirate pronunciation in a more fortis environment. That this should first and more completely have affected initial position of the second element of a compound (rather than word-initial position) can be justified, since British maintained a noun + adjective order, and the latter part of the compound would have been the differentiating element.

In this explanation for sibilant aspiration, the fortis environment of initial position (and most prominently, initial position of the differentiating element) caused an increase in the aspirate tension with which the sibilant was produced. This increase in aspiration brought about the simple, direct change from [s] to [h].

The straightforward explanation for provection falls apart, however, in a dynamic analysis of the phonetic substances of the sounds. In his classic study of the fricatives, Strevens (1960) places the sibilant [s] within a frequency range beginning around 3500Hz and culminating well above 8000Hz. The aspirate [h], on the other hand, maintains a frequency range from between 400Hz and 700Hz to around 6500Hz (compare also the findings of Fant 1959). The frequency range of [s] is thus significantly higher than that of [h].

The importance of the higher frequency range for [s] lies in the dynamic relationship between consonant and vowel. As pointed out by Mermelstein (1973), consonants are not defined in themselves, but in relation to the vowels they constrain. These constrained vowels are characterized acoustically by the relatively low first and second formant frequencies, and such consonants as [s] are perturbations from high-frequency loci (compare Öhman 1966).

Dynamically, provection is a change from a more vowel-like articulation to a more consonant-like articulation -- the strengthening of consonantal constraint -- and lenition is the opposite change -- the weakening of consonantal constraint. Certainly, in the aspirate fortis-lenis scale of Welsh (see Griffen 1985:chapter 5), the more fortis, consonant-like sounds are characterized by a greater high-to-low frequency ratio than are the more lenis, vowel-like sounds.

For provection to have occurred, then, the change would have to have been from a consonantal constraint with a lower high-to-low frequency ratio to one with a higher ratio. In other words, provection

within the aspirate fortis-lenis scale would have proceeded from lower to higher frequency ranges. As seen in the frequency ranges above, though, the sibilant aspiration of British proceeded in the opposite direction.

While provection could not have aspirated the British sibilants, neither could the alternative lenition. Sibilant aspiration is certainly a mark of Modern Irish lenition (the Old Irish lenition changed [s] to [f] -- compare Lewis and Pedersen 1974:129), but the Irish mutation system is significantly different from the British. With such changes as [t] to [θ], Irish lenition involves the weakening of occlusion, not the reduction in aspiration characteristic of British. Much of Irish lenition would thus constitute provective spirantization of voiceless occlusives (compare Harvey 1984) and would not be lenitive in the British sense. Moreover, Jackson (1952:515) objects to the interpretation of sibilant aspiration as lenition, because there is no evidence of a mutation stage -- a stage in which [s] alternated with [h] in lenitive environments.

The Accidental Aspiration

Provection cannot account for the change from [s] to [h], because this would contradict the phonetic evidence (compare the tradition of Grimm's Law in Griffen 1988). The British pattern of lenition is likewise unacceptable, because it would require a systematic change foreign to the British phonology and unattested in the data.

To determine the cause of sibilant aspiration, it is necessary to take a broader dynamic view of lenition than that afforded by the traditional British aspirate fortis-lenis scale. In its broad sense, lenition makes the consonant more like the vowel it constrains. This relationship was noted by Meillet long before dynamic analysis: "Certain principles of change are universal; for example, one will not be surprised to see the tendency to reduce the finals, to see intervocalic consonants undergo the influence of neighboring vowels and thus be made like them by becoming voiced or by losing a part of their closure" (Meillet 1970:9).

While the traditional approach to lenition examines the physiology of consonant weakening -- voicing, loss of occlusion, etc. -- the key to sibilant aspiration lies in the acoustics. Once again, the vowel is characterized by low frequency emissions, and such consonants as [s] by high frequency emissions. Indeed, this is the acoustic basis of the aspirate fortis-lenis scale that dominates the history of the British languages.

The change from [s] to [h] falls within the broad view of lenition, for the high frequency emission of [s] is reduced to the lower frequency emission of [h]. The weakening of the acoustic aspects of the consonantal obstruction makes it more like the vowel it constrains. But this pattern of [s] > [h] is different from anything else happening within the British fortis-lenis scale; and that fact poses a significant problem.

What if, however, the lenition from [s] to [h] was not the systematic tendency of change at all? Perhaps the goal of the sibilant change was not [h], but something else -- something that would contradict neither the phonetic evidence nor the British aspirate fortis-lenis scale. In such an instance, sibilant aspiration would become an accident -- a by-product of some other change.

The change suggested here is the reduction of the sibilant to a vowel, or at least to a semivowel. In this scenario, the initial wave of

change completed as early as the late first century was the model -- in dynamic terms, the reduction in the high-to-low frequency ratio to a degree within the vocalic range. Moreover, this vocalization of [s] occurred in the most lenitive (consonant-weakening) environment -- between vowels in absolute internal position and without supporting stress accent (see Watkins 1972).

By the sixth century, sibilant vocalization asserted itself in the more fortis environments, in which the sibilant had already weakened to Σ in the first century during the sibilant vocalization in absolute internal position. Still internally, the sibilant continued the vocalization process. The fortis environment in initial position of a recognizable element, however, prohibited the sibilant from vocalizing completely and arrested its progress toward the vocalic levels of acoustic frequency emissions at a frequency range below that of the sibilant, but slightly above that of the vowel or semivowel. The point of arrest occurred within the range of [h].

Once [h] became established in this environment, there was no further impetus for the vocalization process. It was not, after all, a sibilant anymore and was therefore not subject to sibilant vocalization. It had achieved the apparent goal of sibilant aspiration by accident.

The tendency toward sibilant vocalization in word-initial position was strong enough to reduce the sibilant to the aspirate frequency level only inconsistently. The maintenance of a more fortis environment in word-initial position than in initial position of the second element of compounds is actually the more expected development in language change (compare Griffen 1988), as is the greater resistance to lenition in the more fortis environment. This resulted in a partial achievement of the goal of lenition -- vocalization -- and its sporadic success even at that.

As for the cause of sibilant vocalization, several conjectures come to mind, each replete with its own doubts. The fact is, however, that sibilant vocalization did indeed occur, and it occurred in a consonantally weaker environment -- environment 1 (see above) -- than did the sibilant aspiration. Moreover, this weak, vocalizing environment clearly occurred at one end of a spectrum in which environment 2 weakened less and environment 3 weakened even less. This spectrum further suggests a single historical process, with vocalization as the most complete realization.

Conclusion

Sibilant aspiration in British does have implications for historical phonology in general. First of all, the change predicted by the usual patterns of provection in the British languages does not hold up under dynamic analysis. It is not enough to make the changes fit into the expected patterns, no matter how reasonable those patterns may appear. While phonological change may indeed occur without phonetic justification in such phenomena as analogic leveling, no phonological analysis of phonetic change is complete without an examination of the most plausible phonetic evidence.

Of course, in such cases the analysis must be dynamic. The fact that the [s] is produced within a higher frequency range than is the [h] means nothing unless that fact is considered within the context in which the consonant with high frequency emission constrains the vowel with

low frequency emission. Speech is produced not with consonant segments and vowel segments following one another in discrete phonematic progression, but in a continuum in which consonantal features constrain vocalic.

Finally, a change from one state to another does not necessarily mean that the goal of the change is to achieve the latter state. If the goal of the sibilant aspiration in British is considered to be the aspirate itself, then there is very little justification for the change -- only contradictory data pitting historical fact against phonetic fact. Rather, one must look beyond the states of change to determine possible tendencies for which the second state is only an intermediate, albeit it the ultimate possible stage given conflicting tendencies.

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VOWEL HARMONY IN SERVIGLIANO AND UNDERSPECIFICATION

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1. Introduction

The dialect of Servigliano is spoken in the Marches of Italy. The data for this research come from Camilli's (1929) article. This dialect exhibits two kinds of vowel harmony. The first traditionally has been referred to as metaphony, and constitutes the raising of tonic and pretonic mid vowels due to a high posttonic vowel (examples: stomekósa 'nauseating' (f. sg.) vs. stumikúsu 'nauseating (m. sg.); métto 'I put' vs. mítti 'you put'). The vowels of extreme height, /i/, /u/, and /a/, remain unchanged in this environment (compare díce 'he says' and díci 'you say'; muta 'mute' (f. sg.) and mutu 'mute' (m. sg.); maño 'I eat' and mañi 'you eat'). The second is posttonic vowel copying in which all non-final posttonic vowels become the same as the final vowel (example: prédoko 'I preach', prédiki 'you preach' and prédaka 'he preaches').

Tonic /a/, /ɛ/, and /ɔ/ block metaphony from spreading past the tonic vowel (examples: sopránu 'airplane'; somɛ́nte 'seed' vs. soménti 'seeds'; ñenɔ́kkjo 'I kneel' vs. ñenókkju 'knee'). Atonic [a], on the other hand, does not block metaphony, but rather is transparent to it (example: bokalétta which has a masculine form bukalíttu).

Due to an atonic vowel reduction, there are only five atonic vowels [i, e, a, o, u], compared to the seven tonic vowels /i, e, ɛ, a, ɔ, o, u/. Tonic /ɛ/ and /ɔ/ become [e] and [o] respectively in atonic position (examples: llɛ́tto 'I call' vs. lletá 'to call'; gɔ́lo 'I fly' vs. golá 'to fly'). Pretonic [e] and [o] participate in metaphony whether or not they are underlying open or closed mid vowels (examples: kredɛ́nno 'believing' vs. kridí 'to believe'; stɛ́nne 'he spreads', stennéte 'you (pl.) spread' and stinní 'to spread').

Several questions arise from the above-cited facts: 1) How does metaphony raise each of the mid vowels one step and why are the vowels of extreme height unchanged? 2) Why do tonic /a/, /ɛ/, and /ɔ/ block metaphony from spreading to pretonic vowels, but atonic /a/ is transparent to metaphony? 3) How does atonic vowel reduction take place and must it be ordered in relation to metaphony? and 4) How do metaphony and posttonic vowel copying differ, since both are triggered by final atonic vowels?

I propose to answer these question employing a framework of underspecification and metrical phonology. This analysis is compared to an analysis of similar data suggested by Calabrese (1987), which employes full specification of features. Underspecification deals with these problems better since: 1) the full specification model resorts to a language specific restriction that [+ high] and [- tense] are incompatible features, and a feature changing negation rule to explain the raising of open mid vowels, while underspecification employs universally conflicting features [high] and [low], and which delink to explain the raising of open mid vowels; 2) full

specification does not explain why the low mid vowels should block metaphony since in most full underspecification systems /ɛ/ and /ɔ/ are marked [- tense] (not [low]), while underspecification does explain the blocking of metaphony by specifying that tonic /ɛ/, /ɔ/ and /a/ are marked with the feature [low] which blocks [high] from spreading; and 3) full specification cannot deal with the transparency of atonic [a], while underspecification can, since in the system atonic /a/ eliminates the feature [low] from its matrix through a vowel reduction rule and then allows the feature [high] to spread beyond it.

2. The Underspecification Model

Two models of underspecification have been proposed: 1) Radical Underspecification, which requires all predictable features and feature values to be underspecified, and 2) Restrictive or Contrastive Underspecification, which calls for a more limited degree of underspecification. Mester and Ito (1989) synthesize the differences between the two approaches as follows:

> a) Radical underspecification maintains that all predictable features both redundant and marked, are left unspecified, thereby resulting in minimization of specification in underlying structure.
>
> b) Restricted underspecification maintains that only redundant features are underspecified, thereby positing a fundamental phonological distinction between features which function contrastively and those which do not. (238)

In (1) below the feature specifications of a five vowel system having full specification, contrastive specification, and radical specification are compared. For Restrictive Underspecification in (1.b) it will be noticed that for all features a ternary system is set up, so that a feature may be [+F], [-F], or not specified for [F]. Ternary specification is perhaps one of the most discussed issues related to underspecification, but Mester and Ito (1989:261) point out that early autosegmental theory maintained that this was well grounded in the facts and should be allowed, while Archangeli and Pulleyblank (1986:13-14) view it as a bad aspect of any model. In connection to the ternary specification - called equipollent features by Goldsmith (1987) - according to Archangeli (1989:190) the privative feature concept (a binary system) is necessary to the model of Contrastive Underspecification. In fact, Mester and Ito (1989), who present evidence in favor of Contrastive Underspecification, or what they call Restrictive Underspecification, make the claim that voicing is a universally privative feature.

It will be noted, in (1) that Radical Underspecification has three possible representations. Archangeli says that:

> certain rule/specifications are preferred by Universal Grammar. During acquisition the first approximation will be in accord with these universal preferences and other options will be selected only if language particular evidence motivates such variation. (1988:193)

The specifications in (1.c.1) are taken as a working hypothesis of those preferred by Universal Grammar, according to Archangeli (1988:193) These specifications do not include the feature [high]. As will be seen in the analysis,

the feature [high] is very important to the understanding of metaphony. Therefore a marked vocalism would be required (1.c.3) if the model of Underspecification, as proposed by Archangeli, were employed.

(1) (a) Full Specification

	i	e	a	o	u
high	+	-	-	-	+
low	-	-	+	-	-
back	-	-	+	+	+

(b) Restrictive Underspecification

	i	e	a	o	u
high	+	-		-	+
low			+	-	
back	-	-		+	+

(c) Radical Underspecification

(1)

	i	e	a	o	u
high		-		-	
low			+		
back				+	+

(2)

	i	e	a	o	u
high		-		-	
low			+		
back	-	-			

(3)

	i	e	a	o	u
high	+				+
low			+		
back				+	+

Arguments have been made in favor of both Radical Underspecification (Kiparsky 1982, Archangeli 1984, Borowsky 1985, Archangeli and Pulleyblank 1986 and others) and Restrictive Underspecification (McCarthy 1985, Mester 1986, Steriade 1987, Mester and Ito 1989 and others). In the following, I have chosen to analyze metaphony employing equipollent and privative features, which may be considered to fall within the Restrictive Underspecification model. In this way the marked vocalism of Archangeli's Radical Underspecification model is avoided.

3. Analysis

3.1. Metaphony

Metaphony in this dialect is, in every case, the raising of a mid vowel due to a following high vowel. The data in (2) provide more examples. This may be considered an assimilation in height. If assimilation is understood as the spreading of a feature of one matrix to that of another, then a feature specifying height becomes imperative for the understanding of metaphony. I, therefore, propose the vowel specifications in (3) to define the underlying vowels in Servigliano. Following Goldsmith's (1987:121) requirement, equipollent and privative features are placed on separate tiers.

(2)

a) /e/

métto	'I put'	mítti	'you put'
mése	'month'	mísi	'months'

b) /ɛ/

pɛ́ttene	'comb'	péttini	'combs
prɛ́doko	'I preach'	prédiki	'you preach'

c) /o/

spósa	'wife'	spúsu	'husband'
fjóre	'flower'	fjúri	'flowers'

d) /ɔ/

mɔ́re	'he dies'	mori	'you die'
mɔ́rta	'dead' (f.)	mórtu	'dead' (m.)

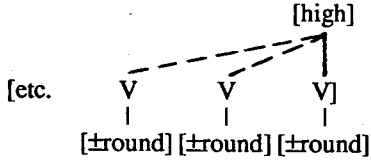
(3)

[high]	[high]			[low]	[low]	[low]
V	V	V	V	V	V	V
[-round]	[+round]	[-round]	[+round]	[-round]	[+round]	
/i/	/u/	/e/	/o/	/ɛ/	/ɔ/	/a/

The feature [high] is not allowed to associate to a vowel without the equipollent feature [±round]. Although this is theoretically a possibility, it would create a high centralized vowel, which does not exist in this dialect. Archangeli and Pulleyblank (1986:23-23) refer to these type of constraints on content by two types: 1) positive constraints (c-constraints) where the feature F can be connected to a segment X only if X is connected to the feature G, and 2) negative constraints (c̄-constraints) where a feature F cannot be connected to a segment X if X is connected to feature G. Thus, the situation described above is a c-constraint; the feature [high] can be connected to a segment V only if V is connected to the feature [±round].

Having defined the vowel system in this manner, a rule for metaphony, which autosegmentally spreads the feature high of final vowels to preceding vowels of the word may be written as in (4) below.

(4)

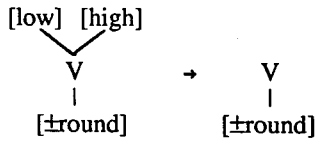


Applying the metaphony rule in (4) to preceding high vowels changes them in no way since they are already high. Due to the above-mentioned c-constraint, the feature [high] is not allowed to spread to underlying /a/ since it

does not have the feature [±round]. Thus this rule explains why the vowels of extreme height remain unchanged by metaphony.

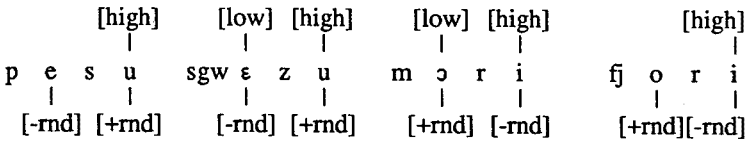
In (6) below are derivations which employ the metaphony rule in (4) to preceding mid vowels /e, ɛ, ɔ, o/. It will be noticed that in the case of the low mid vowels a conflict of features is created; both [low] and [high] are associated to the low mid vowels after metaphony. The rule in (5) remedies this situation by the disassociation of both features to resolve the conflict.

(5)

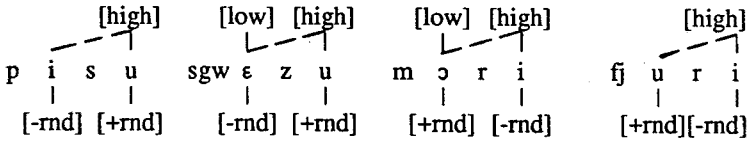


(6)

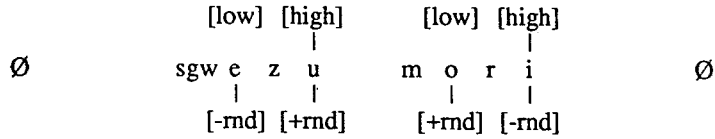
(a) Underlying Representations



(b) Metaphony Rule



(c) Disassociate Conflicting Features Rule



(d) Derivation

pisu sgwezu mori fjuri

In regards to conflicting features, Calabrese (1987) solved a similar problem in an Umbrian dialect by employing a rule which negates the values of the conflicting features. Thus, the features [+high] [-tense] are considered conflicting features and negating their values yields a vowel which is [-high] [+tense] (a high mid vowel). This analysis is not as desirable as the disassociation rule in (5) for two reasons. First, there seems to be no motivation to claim that [+high] and [-tense] are incompatible, while there is no question that [high] and [low] must be considered conflicting features. Second,

a disassociation rule is more desirable than a feature changing rule since the negation of the feature [+high] incorrectly predicts a lowering of the final vowel. It must be remembered that the feature [+high] has spread from the final vowel to be multiply linked. Any change to this feature will also have consequences to all other segments to which it is linked.

The feature [high] in the metaphony rule continues to spread left autosegmentally until it encounters a feature [low] or the end of the word. Example derivations are provided in (7).

(7)

(a) Underlying Representation

```
                [high]          [low][high]          [low][high]
                  |                |    |               |    |
st o mm e k o s u       m o d ɛ st u       p e kk a t u
  |     |   |   |         |    |    |         |         |
[+rnd][-rnd][+rnd][+rnd]  [+rnd][-rnd][+rnd]  [-rnd]    [+rnd]
```

(b) Metaphony

```
                [high]          [low][high]
                  |                |    |
st u mm i k u s u       m o d ɛ st u          Ø
  |     |   |   |         |    |    |
[+rnd][-rnd][+rnd][+rnd]  [+rnd][-rnd][+rnd]
```

(c) Disassociate Conflicting Features

```
                                [high]
                                  |
Ø                       m o d e st u          Ø
                          |    |    |
                        [+rnd][-rnd][+rnd]
```

(d) Derivation

stummikúsu modéstu pekkátu

It will be noticed that in (7b) the feature [high] does not spread past the feature [low] of the tonic vowel /ɛ/ or /a/ to the pretonic vowels ([high] is not allowed to spread to the /a/ due to the c-constraint). The [high] cannot spread past the [low] because they are on the same tier and there would be a crossing of association lines. This explains why a high final vowel cannot spread its feature [high] to pretonic vowels when the tonic vowel is low.

3.2. Atonic Vowel Reduction

There are only five atonic vowels [i, e, a, o, u]. These five vowels are obtained from the underlying seven /i, e, ɛ, a, ɔ, o, u/, by reducing the number of features that define the seven. The feature [low] is eliminated from the defining features. This reduction is illustrated in (8). This type of vowel reduction accurately predicts that when underlying /ɛ/ and /ɔ/ are atonic they

become [e] and [o] respectively. Derivations are provided in (9) for llettá 'to call' (which has underlying atonic /ɛ/ as demonstrated in llɛ́tto 'I call' in which the underyling open mid vowel has become tonic) and for troá 'to find' (the underlying open mid vowel appears in trɔ́o 'I find).

(8)

(a) Underlying vowels

```
[high] [high]                    [low]  [low]  [low]
  |      |                         |      |      |
  V      V      V      V          V      V      V
  |      |      |      |          |      |
[-rnd] [+rnd] [-rnd] [+rnd]     [-rnd] [+rnd]

 /i/    /u/    /e/    /o/        /ɛ/    /ɔ/    /a/
```

(b) Reduced Atonic Vowels by Deletion of [low]

```
[high] [high]
  |      |
  V      V      V      V      V      V      V
  |      |      |      |      |      |
[-rnd] [+rnd] [-rnd] [+rnd] [-rnd] [+rnd]

/i/ [i]  /u/ [u]  /e/ [e]  /o/ [o]  /ɛ/ [e]  /ɔ/ [o]  /a/ [a]
```

(9)

(a) Underlying Representation

```
  [low]  [low]                  [low][low]
    |      |                      |   |
ll  ɛ  tt  á                  tr  ɔ   á
    |                             |
  [-rnd]                        [+rnd]
```

(b) Atonic Vowel Reduction

```
          [low]                    [low]
            |                        |
ll  e  tt  á                  tr  o   á
    |                             |
  [-rnd]                        [+rnd]
```

(c) Derivation

llettá troá

The derivations in the right two columns of (10) demonstrates that vowel reduction must take place before metaphony so that an atonic /ɛ/ and /ɔ/ are ultimately raised to [i] and [u] respectively. The reverse order in the left two columns of (10) yields incorrect results. That the underlying atonic vowel is

an open mid vowel in both durmí 'to sleep' and stinní 'to spread' is verified in the conjugated forms dɔ́rmo 'I sleep' and stɛ́nno 'I spread' in which the open mid vowels do not undergo reduction since they are accented. It should also be noticed in the derivations of (10) that it is a final tonic vowel which spreads the feature [high] to the left. Generally metaphony has been considered the assimilation of a tonic vowel to features of a posttonic vowel. Thus, the vowel harmony in this dialect diverges from what has traditionally been called metaphony.

(10)

(a) Underlying Representations

```
[low][high]  [low][high]        [low][high]      [low][high]
   |    |       |    |            |    |           |    |
d  ɔ rm í    st ɛ nn í         d  ɔ rm í       st ɛ  nn í
```

(b.1) Metaphony

```
[low][high]  [low][high]
   |    |       |    |
d  ɔ rm í    st ɛ nn í
```

(b.2) Atonic Vowel Reduction

```
      [high]          [high]
         |                |
d  o rm í        st e  nn í
```

(c.1) Disass. Conflicting Features

```
      [high]          [high]
         |                |
d  o rm í        st e  nn í
```

(c.2) Metaphony

```
      [high]          [high]
         |                |
d  u rm í        st i  nn í
```

(d.1) Vowel Reduction

Ø Ø

(d.2) Conflicting Features

Ø Ø

(e.1) Incorrect Derivation

*dormí *stenní

(e.2.) Correct Derivation

durmí stinní

3.3. Transparent Atonic [a]

Previously it had been noted that tonic /a/ blocked the spreading of the feature [high] due to metaphony in such forms as sordáti 'soldiers', while atonic [a] allowed metaphony to pass through it in such forms as bukalíttu (compare to bokalétta). The atonic vowel reduction rule also explains why atonic [a] is transparent to metaphony, while tonic /a/ is not. Derivations are provided below in (11). Since atonic [a] has lost the feature [low], the feature [high] is no longer blocked from spreading past the atonic [a]. The feature [high] is still unable to associate to the atonic [a] since it does not have the feature [±round]. The tonic /a/ does have the feature [low], therefore, [high] is blocked from spreading beyond. A full specification of features would not be able to account for this difference of tonic and atonic [a], since the feature [low] would have to be specified through out the derivation.

(11)

(a) Underlying Representation

```
        [low]  [high]                    [low][high]
          \      |                          |    |
b o k a l é tt u                  s o r d á t i
  |        |    |                    |         |
[+rnd]   [-rnd][+rnd]              [+rnd]    [-rnd]
```

(b) Atonic Vowel Reduction

```
                [high]                    [low][high]
                  |                          |    |
b o k a l é tt u                  s o r d á t i
  |        |    |                    |         |
[+rnd]   [-rnd][+rnd]              [+rnd]    [-rnd]
```

(c) Metaphony

```
                [high]
                  |
b u k a l é tt u                  Blocked by [low]
  |        |    |                  of Tonic Vowel
[+rnd]   [-rnd][+rnd]
```

(d) Derivations

bukaléttu sordáti

3.4. Posttonic Vowel Copying

Data such as prédoko 'I preach', prédiki 'you preach', and prédaka 'he preaches' illustrate that non-final atonic vowels are identical to the final vowel. A complete assimilation to the final vowel is evidenced by the fact that the underlying vowel which has assimilated to the final vowel may be recovered when it is not posttonic position. For example, the next to the last posttonic vowel [u] of stómmuku 'stomach' can be shown to be an underlying /e/ when compared to stommekósa 'nauseating' (f. sg.) and stummikúsu 'nauseating' (m. sg.). Non-final posttonic vowels copy the feature (or lack of them) from the final vowel, and lose their own. Meter plays an important role in this assimilation since the tonic vowel is able to block any further application of this rule to the tonic and pretonic vowels. The rule in (12) is a formulation of posttonic vowel copying. F_1 represents the possible set of features for the privative tier; this set being {[high] [Ø]}, where [Ø] is no feature. F_2 is the possible set for the equipollent tier; {[+round], [-round], [Ø]}.

(12)

```
      F1                    F1
       |                    |
V́ V V]    →          V́ V V]
       |                    |
      F2                    F2
```

4. Summary

Two kinds of vowel harmony have been discussed: 1) metaphony, which autosegmentally spreads the feature [high] of any final vowel (whether tonic or atonic) to the left of it in the word, unless it is blocked by the feature [low], and 2) the posttonic vowel copying which is sensitive to meter, since the assimilation of posttonic vowels to the features of the word final posttonic vowel is stopped by the tonic vowel.

Metaphony is unable to effect any change on the vowels of extreme height because spreading the feature [high] to the high vowels changes them in no way, and [high] is not allowed to link to /a/ due to the c-constraint which blocks [high] from associating to a segment which is not specified with either the feature [+round] or [-round].

It has also been seen that the atonic vowel reduction which eliminates the feature [low] from atonic vowels not only accounts for the seven tonic vowels being reduced to five, but also for the transparency of atonic [a] in connection to metaphony. That is, tonic /a/ has the feature [low], which blocks the spreading of [high]. Atonic [a] has lost this feature due to atonic vowel reduction, and therefore allows the feature [high] to pass through it.

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INTERPRETATION OF NASAL-STOP CLUSTERS IN PENDAU

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0. Introduction

The Pendau language is a Western Austronesian language found in the Central Sulawesi province of Indonesia. The population is estimated at between 2000-5000 speakers primarily found on the west coast of the isthmus centering around the equator. This is part of a language chain consisting of about eight languages which has become known as the Tomini group. There is no published information on the Pendau language of any significance.[1]

The aim of this paper is to determine the best interpretation for handling the nasal-stop sequence in Pendau.

1. Sample Data and Syllable Patterns of Pendau

1.1 The Unambiguous Syllable Patterns

The distribution of single consonants can be found in all positions of a word (or syllable) with only a few exceptions as displayed in the chart below (the X represents the position is filled):[2]

	p	t	c	k	b	d	j	g	m	n	ñ	ŋ	ƀ	s	h	ʔ	l	r	w	y
Word Initial	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-
Word Medial	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Word Final	X	X	-	X	X	X	-	X	X	X	-	X	-	X	-	X	X	X	-	X

The possible syllable patterns can thus be shown to be (C)V, and (C)VC. This contrasts for example with the neighboring language group known as Kaili which has only the open syllables (C)V (for example Barr and Barr:1988). These differences will become important later as we make decisions on interpreting the ambiguous nasal-stop sequence. In particular it should be observed that all the nasal consonants involved in the ambiguous pattern can be

found in all word positions unambiguously, and that there are no word initial unambiguous consonant clusters.

Below is data illustrative of these four syllable patterns:

V	[o]	"and"
CV	[ña]	"don't"
VC	[nebéas]	"opened"
CVC	[ruŋ]	"cloud"

The unambiguous syllable pattern can thus be formalized as below:

([-syllabic]) [+syllabic] ([-syllabic])

1.2 The Ambiguous Syllable Pattern

The distribution of consonant sequences is given in the chart below. It should be observed that this distribution is quite limited compared to the available consonants. The obstruent class with a few exceptions can only be preceded by an homorganic nasal.

mp	nt	ŋk	ñc	ns
mb	nd	ŋg	ñj	--

These sequences are limited to word medially and word initially (with the exception of nasal-affricate and nasal-fricative not being found word initially). Native intuition will always break these phonetic sequences into separate syllables word medially (i.e. the nasal as coda followed by the stop as a syllable onset). This is in contrast to the norm for open syllable languages of Central Sulawesi where they are intuitively felt to be part of the same syllable. Data follows giving representative examples in Pendau:

[baŋkálaŋ]	"river"
[máŋge]	"uncle"
[ínsaŋ]	"time"
[sambále]	"butcher"
[eñjelíaŋ]	"tree (species)"
[néntip]	"itchy"
[pendáu]	"Pendau person"
[ómpoŋ]	"stomach"
[káñci]	"diaper pin"

The difficult part comes as we investigate the consonant sequence word initially. As has been mentioned in the literature on other Sulawesi languages

(open syllable language types and those with closed syllable types) in comparison to the total lexicon word initial prenasalized consonants (as these analyses have generally been interpreted as such) are rare (cf. Busenitz and Busenitz:1990 for example). In Pendau there is also only a handful of words begining with a nasal-stop sequence. As will be seen in the following section there have been several ways to interpret the analysis of this particular phenomenon in other Austronesian languages at least in the general geographical vicinity of Sulawesi. We will look briefly at the three basic interpretations and the evidences used to determine the particular interpretation. Below are representative words that exhibit this pattern in Pendau.[3] It should be noted that thus far the data collected shows only the voiced and voiceless stops (i.e. no fricative /s/ or affricates /č/, and /j/):

[ɳtáʔu]	"fruit"		
[ɳdáu]	"no"	[ŋkat]	"small flame"
[ɳdaŋ]	"branch"	[ŋkóluŋ]	"upper babi rusa tusk"
[ɱbóa]	"lie"	[ɱpa]	"cluster of coconuts"
[ɱbíriŋ]	"large flame"		

2. The Three Interpretations

The following three views are interpretations that linguists have given for similar types of data. Some of the interpretations are different because the evidence of the specific language lends itself more to a particular interpretation. In others it could be easily argued from one of the other interpretations. I have grouped these together as they seem to be representative of the analyses given for this particular area of Austronesian languages from the Southern Philippines to Central Sulawesi. Due to lack of time the research has been necessarily restricted areally, however these may well be applicable to other language areas as well.

2.1 The Prenasalized Interpretation

This view is most easily represented by the Kaili group of languages as they all have open syllables, and all of the analyses I am aware of have interpreted the nasal-stop as a single segment, i.e. a prenasalized consonant. This is represented by Barr and Barr (1988) for Da'a (see also Evans:1989 for Ledo, and Martens:1988 for Uma). The primary argument used here is the syllable pattern. Since there are no unambiguous syllables with consonant clusters they are

interpreted phonemically as single segments of the same syllable.

In Saluan a language in Central Sulawesi having closed syllables Brown and Brown (1987) have also interpreted the nasal-obstruent sequence to be a single segment phonemically. They claim this "prenasalized" segment occurs rarely in word final position in free variation with the obstruent. They also claim that there is free variation in some instances between the prenasalized segment and its counterpart obstruent. Notice how this analysis differs with the Balantak language analysis in the following section.

2.2 The Cluster Interpretation in the Same Syllable

This is best represented by Sneddon (1975) for Tondano in Northern Sulawesi. This language appears to have the same basic syllable pattern as Pendau, although word medially there are additional types of consonant clusters.[4] He simply states that these are consonant clusters word initially so the additional syllable patterns CCV(C) are added, but these are limited to word initial position, and the nasal is always a separate morpheme which is an inanimate class marker (see also Sneddon:1978).[5]

Balantak (in Busenitz and Busenitz:1990), another language in Central Sulawesi also in the Saluan language grouping (see section 4.1 above) follows this type of interpretation although the neighboring language was interpreted to have prenasalized consonants. Their evidence includes syllable division between the nasal-obstruent word medially and he reasons that if the sequence can occur word medially it should be possible to occur word initial. The analysis considers the nasal nonsyllabic in this position (this agrees with Brown and Brown in their analysis). Other evidence includes partial prefix elision leaving a final nasal to become the initial consonant of a word. Furthermore he finds it more costly to add the extra seven prenasalized segments and opts to add one more syllable pattern instead. Thus only adding the CCV syllable pattern to the other four basic syllable patterns.

2.3 The Syllabic Nasal with Underlying Vowel Interpretation

This is represented in the Southern Philippines by Allison (1979) for Sibutu Sama, Walton (1979) for Pangutaran (Sama) and by Marriot for Sarangani Sangiré

(1977; traditionally known as Sangil, cf. Sneddon:1984) in the Southern Philippines.

Although these analyses vary a little they are in essence the same. The evidence is a little different in these languages and they have the similar nasal-obstruent sequence but in addition to these they have other geminated consonants occuring word medially and word initially. In some of these languages there is clear evidence of an underlying vowel which disappears word initially. It is interesting that one of the arguments that Allison (1979) uses is precisely the reverse in some of the preceding interpretations. He argues that precisely because there are no nonsuspect consonant clusters in the syllable margins this implies that word medial clusters must be split into separate syllables and the same logic must be used word initially. Additional evidence he marshalls is that of stress on the syllabic nasal. His data has words such as [ˋn.da] "wife". Of most interest to us is the statement he makes in a footnote (1979:89) where he refers to Palleson (1977):

> Comparative studies (Palleson) show that forms with stem-initial homorganic and geminate consonant clusters are reflexes of Proto-Sama forms in which a schwa */ə/ originally preceded the consonant cluster. Thus: [ˋp.paq]<[ˋəp.paq], [ˋt.tuq]<*[ˋət.tuq], [ˋk.kaq]<*[ˋək.kaq], etc. The proto-schwa in Sibutu Sama lost its contrastive status and disappeared stem-initially, leaving the homorganic clusters in stem-initial position. Now, most of these forms comprise only two syllables, and carry stress on the penult, both in the proto-form and in the modern form. This stress did not disappear along with the schwa, but has been retained, being carried by the first member of the initial consonant cluster.

Walton gives evidence for Pangutaran (1979:196):

> When phonetic long consonants, or homorganic consonant clusters occur initially in a phonetic word they are interpreted as occurring across syllable boundaries. The onset of the long consonant or first consonant of the cluster is perceived as being syllabic. It is therefore interpreted as the coda of the initial syllable of the

word and the second consonant of the sequence is the onset of the second syllable:

['m:aq]	'father'
['ndaq]	'to look'

This syllabic consonant is viewed as an etic stressed C syllable, whose nucleus is the unrealized allophone of the weak mid central vowel /ə/. Hence, the phonemic realization of this etic C syllable is CVC, e.g., ['m:aq] /qəmmaq/ 'father', ['mpuq] /qəmpuq/ 'grandchild'. The positing of the mid central unrounded vowel in this environment is based on the fact that no nonsuspect syllables occur having a contoid as syllable peak.

Finally, it should be observed that syllabic consonants have been recognized to derive from a consonant vowel combination (in either sequence). Bell (1978) states from a comparison of 85 languages that "the main process of their formation, which is loss of a vowel and concomitant shift of syllabicity to an adjacent consonant, occurs fairly commonly in favored environments."

3.0 The Allosyllable and Evidence for Positing it in Pendau

As can probably be surmised I have analyized Pendau in a similar fashion as the third analysis above, considering that the initial nasal is syllabic word initially. Pike (1947:140) has mentioned that "syllabic consonants may be analyized as containing a consonant and vowel simultaneously." Following this argument one comes up with an allosyllable which can function emically in the same manner as allomorphs and allophones. This solves the ambiguous syllable problem at the same time as cutting down nine extra phonemes. What follows are the evidences I use to determine that Pendau actually only has four emic syllable patterns and that indeed there are no phonetic or phonemic prenasalized consonants.[6]

3.1 Native Intuition

It is very clear as it is in Balantak that consonant sequences are in neighboring syllables word medially. To verify this I devised the Singing Syllable Test based on the Indonesian tradition of learning songs according to the <u>do</u> <u>re</u> <u>mi</u> music scale.

I tested literate individuals in several different villages and explained by example how to find the syllable division of a word by singing it according to the do re mi scale. This will then subject each syllable to a different pitch. I received consistent results of syllables being broken up between consonant sequences. Also on this list were a couple of word initial consonant sequences, and the words would be sung as in the examples below. Notice specifically that the test subjects would sing word initial sequences with the syllabic nasal at a different pitch:

[ṇdáu] "no"	[ṇdúeŋ] "anoa"	[ṃbóa] "lie (untruth)"
ṇ dá u	ṇ dú eŋ	ṃ bó a
do re mi	do re mi	do re mi

3.2 Free Variation between Ṇ and VN

The evidence here follows what is clear for the Philippine languages (i.e. that there is an underlying vowel), and is not quite so clear in Pendau, although there is some evidence as in variants between the word for "egg" [ṇtólu] and [intólu]. It is clear from the Pendau speakers that the latter version is the full form as can be verified when affixed as [peintolúoŋ] "nest".

In the Singing Syllable Test two words were altered to see what sort of reaction Pendau speakers would give. /ndau/ was spelled as <endau> and /mboa/ as <emboa>.[7] One man I specifically asked after he finished the test said that sometimes people did say these words as I had listed them. This again suggests free variation between VC and Ç.

One striking example comes from a word elicited from one Pendau language helper who made a list of words with word initial consonant sequences. The word [ṃbar] "sago branch" was among these words. As I checked to see which words represented shorter forms he then gave me the alternative for [ṃbar] as [úmbar].

3.3 Partial Prefix Elision

Verbal prefixes are sometimes shortened leaving the nasal to become the initial segment of the word, thus leaving a shortened version of that syllable. This happens similarly in Balantak (Busenitz and Busenitz:1990). There are also other languages in Indonesia that have a more regular process, and even the prefixes have become just the nasal (cf. Muhadjir:1981 for the Betawi dialect in Jakarta). The

first set of examples from Pendau below illustrates partial verbal prefix elision, and the second set partial prefix elision along with part of the stem eliding:

[bulágon]	/bulagon/	"rattan"
[mombulágon]	/moŋ+bulagon/	"gather rattan"
[mbulágon]	/ŋ+bulagon/	"gather rattan"
[gémpaŋ]	/gempaŋ/	"walk"
[negémpaŋ]	/ne+gempaŋ/	"walk"
[mpaŋ]	/mpaŋ/	"walk"

Sneddon (1984) gives some historical data which accounts for some word initial nasal-stop clusters in Ratahan (a Sangiric language in North Sulawesi) where historically the first syllable has been partially dropped. For example in Proto-Sangiric he cites *[bəmbulu] has become [mbulu] "feather" in Ratahan.

3.4 Structural Pressure

I follow the same argument that Allison follows in that if there are no unambiguous consonant sequences our first choice should be to find a solution that satisfies this. This is verified by native intuition. Also the phonetic nature of a syllabic nasal implies that it may function as a syllable.

In addition we can find examples where a prefix is added to a word stem and where by native intuition it is clear that word medially the consonant sequence is split into separate syllables. It follows that the initial nasal could be interpreted as in a different syllable than the following syllable, thus revealing it to be a syllabic nasal. Other structural evidence supporting this are the unambiguous nasals in word or syllable final position (i.e. nonclustered nasals). Since syllabic nasals never follow vowels, this suggests that the syllabic nasal desyllabifies when following a vowel (see Mfonyam:1986 for an explanation of this process in an African language).

[ṇ.dá.u] "no" [pen.dá.u] "Pendau person"

4.0 Conclusion

In this analysis I have given greatest weight to the existing syllable structure. By understanding that the syllabic nasal is actually an allosyllable of the VC syllable we do not add any syllables to the existing emic syllable pattern. This also handles very tidily

the phoneme chart. We have been able to economize and maintain a much simpler phoneme chart. This is a bonus that this analysis gives us. In addition we must understand that not all VC patterns are going to exhibit a Ç allosyllable. It may be limited to the word initial position, just as an allophone of a phone is limited to a specific environmental position. This restricts the possibilities to only the nasals followed by a consonant as we can see there are other words with the VC pattern such as [tiol] "fold" and [molumeap] "fly".

If we were to assume that Pendau actually has prenasalized stops word initially, then why would they later be separated when a prefix is added such as /pe+ndau/ "Pendau person"? This inconsistency is resolved by allowing the initial nasal to be understood to be syllabic in nature and desyllabifying when a prefix is formed in front of it or becoming syllabic when the prefix or portion of word is dropped off from the speech utterance.

In conclusion we see that the initial ambiguity of word initial nasal-stop clusters in Pendau can be handled under the theoretical concept of an allosyllable. Future research is planned in checking this interpretation with acoustic studies. This will include testing on stress and timing to check on whether such possibilities as penultimate stress may occur on the syllabic nasal. Also needed are some comparative and diachronic research studies such as has been carried out by Sneddon (1984). Comparative studies of this particular phenomenon should be fruitful in demonstrating the process of nasal-stop sequences to syllabic nasal to prenasalized consonants historically.

NOTES

[1]The author and his wife Rebecca Quick have spent six months gathering data in the Pendau language area as well as additional time with Pendau speakers outside of the primary Pendau language area. This ongoing research is part of a formal cooperative work agreement between Hasanuddin University (UNHAS) in Ujung Pandang (South Sulawesi province) and the Summer Institute of Linguistics (SIL) as well as cooperation with the Tadulako University (UNTAD) in Central Sulawesi. We wish to acknowlege the help of these universities, government officials, and the Department of Education

and Culture in all they have done to enable us to carry out our research.

I am also grateful for the SIL consultants and colleagues who have helped in various stages of the analysis and who have made various comments and observations of the topic discussed in this paper which was originally presented as part of a rough draft for the phonological analysis of Pendau (Quick:1989). I especially want to thank Donald Barr, Donald Burquest, Rene van den Berg, and Tim Friberg. I also want to acknowledge the suggestions and comments made by Nikolaus Himmelman from the Köln University who has begun research in the Tomini language group.

[2]The glottal can be found syllable initial word medially.

[3]It is thought that stress may occur on the syllabic nasal when occurring as the penultimate syllable, and acoustic tests will be carried out shortly as more data is examined. Stress is not marked on examples of this type as it is not yet clear where stress is on these words.

[4] Sneddon does deal in detail with the possible consonant sequences and classifies these sequences into several different cluster types. These sequence possibilities are more broad than in Pendau, including Tondano examples such as /namutna/ 'root' and /lawasna/ 'his hand'.

[5] Sneddon also gives some interesting data where a schwa is inserted before a nasal-obstruent sequence. "When a word begins with a nasal-obstruent cluster schwa always occurs if the preceding word ends with a consonant and there is no intervening pause (1975:28)."

[6] I follow Ladefoged's definition (1982) of a prenasalized consonant, and strictly view a prenasalized consonant as a segment and never a sequence.

[7] I acknowledge Timothy Friberg and thank him for suggesting that I should do some kind of testing which included this type of alteration.

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IV

MORPHOLOGY AND SYNTAX

ARE VERBS REALLY NECESSARY?

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For some time syntacticians have assumed the primacy of verbs in the description of clauses.[1] Note, for example, Halliday's treatment of the Clause as Representation (of process)[2] which contains three types of units: participants (Actor, Goal, Senser, etc.), circumstances (e.g. Quality, Time, Place, etc.), and (always, for English) processes (e.g. Material--doing; Mental--sensing and Relational--being). Halliday's discussion centers around the process (and, indeed, the primacy of the process is partially shown through the naming of this system) and each of his examples (all of English) contains a process. This forces, therefore, a definition of 'being' (usually expressed by some form of the verb 'to be') as a process. Halliday does maintain that his analysis is applicable only to English, though, in principle, at least, most systemicists (plus others such as myself) feel that the generalities should be descriptive of all human language. (For details of Halliday's analysis, see his 1985 volume.)

In tagmemics, also, generally clauses have been considered to consist of, minimally, a predicate (usually expressed by a verb or verb phrase). Participants are also in general described as functioning within clauses (they are termed 'roles' by Pike--see Pike and Pike, 1982).[3] And, as in systemic grammar, other tagmemes similar to Halliday's circumstances (e.g., location, manner, etc.) are also included there. The predicate tagmeme is considered to be both central and obligatory in clauses.

Many other traditional analyses of English seem to consider the verb as primary in that transitivity is treated as a property of the verb. From this perspective it is necessary to describe a large number of English verbs as being both transitive <u>and</u> intransitive.

To be fair, however, I must add that many scholars have pointed out the global nature of clausal features. Hopper and Thompson state, for example, that "transitivity is traditionally understood as a global property of an entire clause such that an <u>activity</u> [emphasis mine] is 'carried over' or 'transferred' from an agent to a patient" (1980:251). Pike and Pike (1982:438) define a clause as: "The minimum unit in which a proposition is stated, i.e., in which something is said about terms, or in which a term (or terms) is (are) part of a statement, question...[etc.]." But they also add that a clause contains "tagmemes which relate certain participants to each other and to an action or state" (1982:228). It is the last phrase requiring a clause to contain an action or state, on which I wish to focus.

Halliday also defines a clause as a representation of 'patterns of experience' (1985:101) and in addition to being a clause constituent process is a global property of the clause, as is transitivity.

For English, all of these descriptions seem to fit fairly well. English clauses do all contain a verb (although the consideration of 'being' as a process seems akward, and I have already mentioned the difficulty of having to consider so many verbs as being both transitive and intransitive).

But it is in the analysis of languages other than English where more serious difficulties arise. These are languages whose clauses--i.e., syntactic spans in which participants (or roles) occur--do not contain verbs of any sort. Two examples from Mandarin exemplify this situation:

(1)	ta	hen	hau	
	he/she	very	good	
(2)	jei	shor	ger	hauting
	this	classifier	song	good

(1) may be translated 'He lives very well', 'He has done it very well', 'She is good looking' or 'She looks very good' in appropriate contexts. The second could mean 'This song sounds nice', 'This song was sung very well' or 'This song was played very well'. Certainly these seem to be clauses, containing participants and circumstances--or roles (i.e., with units having 'cases' as componants), yet lack verbs.

In Rengao (a Mon Khmer language, described by Kenneth Gretgerson in 1979) (3) through (13) all are clauses.

(3)	in	brayq	jaat		
	2sg	tired	very		'You are very tired'
(4)	aw	khaan	aw	badrong	
	1sg	say	1sg	rich	'I say I am rich'
(5)	eh	bOq	pataw	hül	aw
	future	grand-father	rich man	angry	1sg
					'Mr. Richman will be angry at me'
(6)	miq	nu	paq	1I	
	mother	2sg	loc.	indef.	'Where is your mother?'
(7)	basEh	thay	raqAy		
	wizard	necessity	clever		'A wizard must be clever'
(8)	baq	nu	paq	1I	
	father	2sg	at	idef.	'Where is your father?'
(9)	thEr	koon	Ir		
	Ther	child	Ir	'Ther is Ir's child"	
(10)	gE	manOyk	1em		
	3sg	person	good		'He is a good person'
(11)	miq	aw	kaqUUq		
	mother	1sg	sad		'My mother is sad'
(12)	ramo	bOq	pataw	ramaq	
	cow	grand-father	rich man	fat	'The rich man's cows are fat'
(13)	tadam	paq	kiing	jEk	
	boy	at	edge	field	
					'The boy is at the edge of the field'

Similarly, in other languages, comparable structures occur--e.g., it is possible to say in colloquial German, 'Weisst du, wo der Bahnhof?' or 'Ich muss in die Stadt', where a number of different verbs could be added to each. In addition, constructions of this type are well known in Arabic and Russian.

At times, some tagmemicists have proposed that in cases such as the above, either a participant or (in Halliday's terms) a circumstance, is really functioning as a predicate--e.g., the phrase 'very good' would be a predicate in (1) as would be 'good person' in (10), etc. In languages where such items are inflected as verbs, this would seem to be a reasonable analysis, but in (1) through (13) I believe that no element is functioning as a predicate and no verb or verbal is included in those spans.

Rather, what is present in each is a network of relationships between cases (or roles and participants). For (1), for instance, one possible relationship expressed would be that he/she has the attribute of being good looking.

I therefore propose that, rather than considering the verb as central and obligatory to all clauses, one posit as primary the relationships between roles (i.e., between participants and circumstances or between cases). The inclusion of a verb is therefore appropriate to only some clauses, but not to all. Transitive and intransitive clauses do require verbs, and the Hopper-Thompson quote cited above would cover only those clauses. Halliday's definition and that of the Pikes, likewise only cover certain clauses. Transitivity (or intransitivity) would therefore be a global component of clauses only where there is action involved. The Predicate would not be an obligatory component of clauses, but it would be diagnostic of clauses when it does occur (that is, it would not occur at any other level). A clause would then be re-defined as the level at which case relationships occur.

Robert Longacre has presented a scheme which would be applicable here. He has given a series of 'case frames' for English, presenting configurations of cases together with the appropriate verb classes which occur with each configuration. These are indeed useful when verbs do occur, although here again the verb seems to be the beginning point of the presentation, and the problem of having one verb as both transitive and intransitive remains. But Longacre's system could be easily adapted to make the co-occurrence patterns of roles primary and then indicate in which patterns different verb classes occur and include patterns without verbs.

If one follows the suggestion here that case relationships be considered the primary feature of clauses, then verbal clauses will be in a different class from non-verbal ones, in that verbs will be obligatory in one class and not in another. In a paper delivered at the 17th International Systemic Congress at the University of Stirling (Scotland) in July of this year, Kristin Davidse gave some convincing arguments for considering two systems of clauses in English--one a transitivity system and a second an ergative system. It is beyond the scope of this paper to discuss this, but, although her arguments seemed most persuasive for the

large percentage of the data, clauses containing the verb 'to be', for example, do not seem to well fit either system. In addition, Gillian Francis, in a paper at the same Congress made a plea for primacy of nominals, rather than verbals. It seems to me that both are correct--that is, one should establish two classes of clauses--one in which verbs play a prominent part and a second in which verbs do not occur. (English clauses containing the verb 'to be' might fall into the second class however--making two classes for English, one with an action verb and one with a stative.) In both classes, relationships of a 'case' nature occur, and thus that component could be considered to be the primary feature of clauses.

Therefore, the answer to the question "Are verbs really necessary?" is both no and yes--no as an obligatory component of ALL clauses, but yes as an obligatory feature of SOME CLAUSES.

Endnotes

1. I am especially referring to analyses in which the clause is considered to be separate from the sentence.
2. Other systems being the clause as Message, and the Clause as Exchange.
3. These are comparable of course to the cases of Fillmore (1969) or Longacre (1983).

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THE SEMANTICS OF VOICE ORGANIZATION IN RUSSIAN

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Russian has a complex and delicately articulated voice system, comprising a heterogeneous set of formal distinctions. The forms expressing voice include a periphrastic passive with participial main verb plus *be*, a derivational particle *-sja* contrasting with a full reflexive pronoun, dative subject constructions, and at least two or three constructions which look active and unmarked but exhibit distinctive behavior. Moreover, the functions of many of these categories (as they have been understood in the past) appear to overlap heavily. The set of constructions considered to constitute voice alternations and the criteria for their classification--lexical-semantic, morphological, or constructional--have been the subject of protracted debate in Slavic linguistics, without a comfortable solution ever being found. Some of the earliest approaches considered only formally reflexive vs. formally non-reflexive, in other words, those with *-sja* vs. those without *-sja* (Nekrasov 1865; Fortunatov 1903; Jakobson 1932). Others have excluded all distinctions other than formally active vs. formally passive from consideration (Isačenko 1960). Still others have excluded all distinctions other than semantically active vs. semantically passive (Havranek 1928; Norman 1972). And finally, the dominant trend of the last 30 years, in both Western and Slavic linguistics, has been to consider voice as the linking of the grammatical role of subject with various absolutelty defined semantic roles, in particular agent (agent plus subject yields active voice), patient (patient plus subject yields passive voice), and occasionally experiencer (experiencer plus subject yields middle or reflexive). Thus, the way to tell voices apart in this approach is to look at the semantic role of the subject.

One can't actually call this approach 'wrong', since the subject always can be said to realize some general semantic role. Unfortunately, it doesn't go far enough. The problem, as mentioned earlier, is that there is considerable functional overlap between the voice constructions. In other words, at least for Russian, there are *several* ways to express patient as subject or agent as subject, and so on. If we take voice to be only the relationship between subject and an absolute semantic role, we are left with no way of understanding why there appear to be several ways of expressing each type of relationship.

In order to get to the bottom of the voice situation in Russian, I have taken a somewhat different approach. Rather than assume a finite set of grammatical-role-to-semantic-role relations, I first looked simply at *any* modulations in the morphosyntactic

behavior of the subject-verb relationship, whether traditionally counted as voice or not. Subjecthood in Russian is marked by case and by verb agreement for gender and number. Any variations in these parameters and any derivational marking on the verb regarding the status of the subject were examined and closely compared to discover their actual functional and semantic value. The results were very interesting.

We will turn now to the data, discussing a selection of four constructions, including agentless impersonal, periphrastic or 'be' passive, and productive uses of the -sja-construction.

The agent-elided plural impersonal

The agent-elided plural impersonal consists of a verb conjugated for third person plural, an elided grammatical subject, and optionally a patient in the accusative and/or a recipient in the dative. If there is a patient or recipient, it will appear in sentence-initial (topic) position (in other words, the pattern is OV). No constituent in the sentence is in the nominative case.

(1) **Nam pokazyva-l-i vsjak-ie kinoe [sic] predstavleni-ja.**
We-DAT show-PST-PL various-PL cinematic presentation-ACC/PL
'(They) showed us all kinds of movies.'

(2) **V Rossii eto ed-jat.**
In Russia that eat-PRES/3PL
'(They) eat that in Russia.'

(3) **Muž -a ne puska-jut.**
Husband-ACC/GEN NEG allow-PRES/3PL
'(They) don't let the husband in/Husbands aren't allowed in there.'

(4) **Doč -enko! Menja vez -ut!**
Daughter-DIM I-ACC take-PRES/3PL
'Baby girl! (They)'re taking me away!'

The agent(s) in all of these examples are human and unknown or non-referential. They contrast in this regard with constructions having a 3rd person plural pronoun (*oni*) as subject, which always refers to a discourse particular. The construed subject of the examples shown here does not refer to a discourse particular. Occasionally in Russian a known, highly topical plural pronominal subject can be omitted from a clause which is not impersonal, but a referent can be found in the immediately preceding discourse and word order is VO. Such is not the case with the plural impersonal. In (5), the agent of *ograbili* does not necessarily have to be Ivan and Petja:

(5) **Ivan i Petja--xuligany. Men-ja ograbi-l-i.**
Ivan and Peter--thugs. I-ACC rob-PAST-PL
'Ivan and Peter are thugs. I was robbed.'

while in (6),

(6) **Ivan i Petja--xuligany. Ograbi-l-i men-ja.**

the second clause, *Ograbili menja*, is not an impersonal but rather a definite active clause (shown by object-final word order) with an elided highly topical subject. In other words, the referent of *-li* is Ivan and Petja.

As shown, use of the agent-elided plural in Russian indicates a situation in which the identity of the agent is unknown or indefinite, much like the English passive often does. Although the verb itself has no distinctive morphology which would indisputably mark the construction as a voice alternant, the behavior of the (elided) 'subject' and the restrictions on the usage of the construction indicate that it has a particular functional difference from an ordinary active construction, and that is specifically to express the characteristics of indefiniteness or intangibility of a necessarily human agent/subject. The relevance of this factor will become more apparent later in the discussion.

The neuter impersonal

The neuter impersonal is a construction type in which the verb is marked third person singular neuter (neuter marking is visible only in the past tense), regardless of the gender of the agent or patient. The verb does not agree with any sentence constituent, and no constituent appears in the nominative case. This construction type differs somewhat from a dative subject construction firstly in that the subject/undergoer is in the accusative rather than the dative, and secondly in that agents may be expressed overtly in an oblique phrase (instrumental--used also for agents of periphrastic passives). Numbers (7)-(9) illustrate.

(7) **Tanj -u ubi-l -o molni -ej.** (Comrie 1979:73)
Tanya-ACC kill-PAST-N lightning-INST
'The lightning killed Tanya/Tanya was killed by lightning.'

(8) **Tanj -u ubi -l -o pul -ej.** (*ibid.*)
Tanya-ACC kill-PAST-N bullet-INST
'The bullet killed Tanya/Tanya was killed by the bullet.'

(9) **Plat'e porva-l-o vetv'-ju.**
Dress-ACC tear-PAST-N branch-INST
'A branch tore the dress/The dress was torn by a branch.'

As in the plural impersonal, the verbs are morphologically 'active', and the patient is not promoted to subject. Here, however, the agent

is not elided but is demoted to an instrumental phrase. In fact, versions without overt instrumental agents are at best extremely marginal. In contrast to the plural impersonal, which is used only for indefinite *human* agents, this construction may be used only when the agent is a natural force (weather phenomena, for example) or other inanimate yet mobile and potent entity (machines, projectiles, etc.). Siewierska (1988:277-8), citing Mel'čuk (1979:248), provides further evidence of the importance of the semantic features of the agent in her discussion of the following examples:

(10) **a.Sil'nym udarom ego sbilo s nog.**
strong:INST blow:INST he:ACC knock:3SG:N from feet
'He got knocked off his feet by a strong blow.'

b.Sil'nyj udar sbil ego s nog.
strong:M blow:M knock:3SG:M he:ACC from feet
'A strong blow knocked him to his feet.'

(11) **a.*Soldaty brosilis' na Ivana, i srazu že sil'nym** Soldiers rushed at Ivan and immediately strong-INST

udarom ego sbilo s nog.
blow-INST he:ACC knock:3SG:N from feet
'The soldiers rushed at Ivan, and immediately he got knocked off his feet by a strong blow.'

b.Soldaty brosilis' na Ivana, i srazu že sil'nyj udar
Soldiers rushed at Ivan, and immediately strong blow

sbil ego s nog.
knock he:ACC from feet
'The soldiers rushed at Ivan, and immediately a strong blow knocked him off his feet.'

Note that in (10 a and b), either the plain active or the neuter impersonal construction can be used; however, in (b) the interpretation is that the cause of the blow is a natural force, as explained above. The unacceptability of (11a) can be attributed to just this factor: when a specifically human agent is the source of the blow, the neuter impersonal is inappropriate, although the active with agent is acceptable, as in (11b). Siewierska (1988:278) suggests that 'since clauses such as [11b] display the same transitivity features as [11a], the change from nominative to instrumental marking cannot be attributed to differences in semantic transitivity. But there is no reason why it cannot be attributed to an *additional semantic feature of one of the participants* [emphasis mine--CC].' So, as we saw in the plural impersonal, the use of this construction type depends on the particular semantic features of the

agent.

The periphrastic passive

Russian has a typical 'be' passive with participial lexical verb, a patient (but not recipient or other role) promoted to subject and triggering agreement in the auxiliary, and the agent, when present, demoted to an instrumental phrase. It is well known that passives are rare in spoken Russian, far rarer than in English. Usually what would be a passive in English is expressed with the agentless impersonal in Russian. But the passive is not totally dead yet. Consider:

(12) **My by-l- i šokirov-ann-ye.**
We be-PAST-PL shock-PCPL-PL
'We were shocked.'

(13) **Ona by-l -a potrjas-en-a eti-mi, vse-mi magazin-ami.**
She be-PAST-F amaze-PCPL-F this-INST, all-INST store-INST
'She was amazed by these, all these stores.'

(14) **Ja by-l ograb-len.**
I be-PAST rob-PCPL
'I've been robbed.'

In all of the volunteered examples, the passivized subject (patient) was human and pronominal. Inanimate subjects are theoretically possible in passives, but they occur far less frequently in spoken Russian than do passives with animate subjects.

One of the striking characteristics of the passive in spoken Russian is that it is used primarily for situations which can be described as affective, if not 'adversative'. Cf. [12-14], which all have semantically very transitive events and highly affected patients. Also, whatever causes the event (the 'agent') is usually either an uncontrollable situation or natural force, or is treated as such. All of the passives volunteered by the consultants followed this pattern. For example, the umbilical cord in (15) and the stores in (13) are not directly or volitionally acting upon the patient. The tendency to put affective situations with non-volitional or ambient agents in the passive is further shown by the speakers' preference for

(15) **Ona by-l -a zakruč-en-a/obmota-n-a pupovin-oi.**
She be-PAST-F wind/strangle-PCPL-F umbilical.cord-INST
'She was tangled up in/strangled by the umbilical cord.'

over the active

(16) ***Ee zakruči-l-a/obmota-l-a pupovina.**
She-ACC wind/strangle-PAST-F umbilical.cord-NOM
'The umbilical cord was winding around/strangling her.'

The umbilical cord, a potent but not animate source of the event, is more comfortably expressed as an instrumental than as a subject (16). Note also that this is not a matter of topicalization as the information structure of both sentences is identical.

The preference for

(14) Ja by-l ograb-len.
I be-PAST rob-PCPL
'I was robbed.'

over

(17) ?Ja by-l ograb-len imi.
I be-PAST rob-PCPL they/INST
'I was robbed by them.'

also illustrates the lack of affinity for overtly expressed animate agents in the passive. Sentence (17) is considered to be grammatically correct but odd-sounding. Note that no mention of an agent is made in (14); the focus is on what happened to the speaker (and note that it is adversative). The oddness of (17) is due to the combination of the passive voice with a definite, animate agent: the two do not mix well.

While it is true that the semantics of the agent/causer and of the event itself (its 'adversative' aspect) play a crucial role in the use of the passive in spoken Russian, the passive is also without doubt a means of focussing attention on the patient and is also intimately connected with aspect. Unfortunately a complete discussion is beyond the scope of this discussion. But we would like to note that frequently, in instances in which the agent is human and indefinite--the passive and the agent-elided plural impersonal in Russian can be nearly interchangeable. Yet only the passive has full promotion of patient to grammatical subject, whereas the patient of the impersonal remains in the accusative. Thus, the two constructions, while similar, have a subtle functional distinction.

Constructions with verbs marked with the particle *-sja*

Constructions with verbs marked in *-sja* are notorious for their slippery behavior and their resistance to attempts at a general characterization. (For this discussion, we will look only at the productive uses of *-sja*, although there is a large number of idioms built around this particle.) Originally, *-sja* was a reflexive marker, but in modern Russian *-sja* seems to have various functions, appearing in constructions which can be characterized as passives, mediopassives, middles, impersonals, reflexives and reciprocals. The use of *-sja* on a verb is frequently considered to be detransitivizing or agent-defocussing. When *-sja* is added to a transitive verb, the undergoer is realized as subject of the clause, and the clause will be syntactically intransitive: no direct object in the accusative may appear, and the construction cannot be

passivized (although Timberlake 1976 discusses some North Russian dialectal variants with passivized reflexives). Only extremely rarely are agents expressed in this construction; when they do appear, it is in an oblique phrase. Nekrasov (1865) characterized this construction as focussing on the 'manifestation of the event itself and not on the relationship of the event to its subject'. In other words, the participants recede semantically. Comrie (1979d:80) describes this use of *-sja* as a signalling on the verb of a grammatical role (subject) having a marked semantic role (non-agent)--in other words, as a signal that the agent is not in subject position. Norman (1972:131) claims that the *-sja* is detransitivizing. However, as the following data will show, the mere shifting of grammatical roles or focussing of one participant rather than another cannot fully explain the behavior of *-sja* as a voice alternant. Consider:

(18) **Plat'e porva-l-o-s'.**
Dress tear-PAST-N-SJA
'The dress tore.'

(19) **Vnuk očen' izmeni-l-sja.**
Grandson very change-PAST/M-SJA
'The grandson changed/had changed very much.'

(20) **My peresaživa-l-i-s' v New York-e.**
We reseat-PAST-PL-SJA in New York-LOC
'We changed planes in New York.'

(21) **Voina nača-l-a-s'.**
War begin-PAST-F-SJA
'The war started.'

The verbs in all of these examples are syntactically intransitive and have unmarked counterparts which are transitive and which are lexically synonymous.

As we saw in the above discussion of passives and impersonals, voice constructions in Russian seem to be heavily influenced by the nature of the *literal source* of the action. In these examples, we see that the source of the action is presented as if lying within the undergoer of the action:

(22) ***Voina nača-l-a-s' Germani-ei.**
War start-PAST-F-SJA Germany-INST

(23) ***Vnuk očen' izmeni-l-sja sobyti-jami.**
Grandson very change-PAST-SJA events-INST

(24) ***My peresaživa-l-i-s' v New York-e stjuardess-oi.**
We reseat-PAST-PL-SJA in N.Y.-LOC stewardess-INST

(25) **?Plat'e porva-l-o-s' vetv'-ju.**
Dress tear-PAST-N-SJA branch-INST
'The dress was torn by the branch.'

(26) **?Kurica žarit-sja mam-oi.**
Chicken cook-SJA mother-INST
'The chicken is being cooked by mother.'

Note the behavior of (27) with various adverbs:

(27) **a.Dom stroit-sja.**
House build-SJA
'The house is being built/under construction.'

b.Dom stroit-sja bystro/medlenno/*ploxo/*legko.
House build-SJA fast/slowly/badly/easily
'The house is being built quickly/slowly.'
*'The house is being built poorly/easily.'

Only those adverbs which do not necessarily indicate a volitional agent--even an elided one--are possible. The adverbs *bystro* 'fast' and *medlenno* 'slowly' focus upon the emergence of the finished product (the building), while *ploxo* 'badly' and *legko* 'easily' focus upon the manner in which the activity is carried out, thus implying an agent. The house is presented as if it were 'building itself', so to speak, but lacks enough characteristics of animacy to control the quality of the building.

The relevance of the notion of syntactic detransitivization as a means of expressing a pragmatic focus of attention on the action itself or on its effect on the patient as discussed above certainly cannot be discounted. However, their patterning restrictions with agentive phrases show that this is not an issue purely of point of view or empathy. A semantic factor simultaneously conditions their use as well--one that is consistent with the general pattern we have seen so far for Russian. With few exceptions, the *sja*-construction indicates that the source of the action lies within the subject/undergoer.

Conclusion

In this chapter we have analyzed a range of construction types: plural impersonals with elided agent, neuter impersonals, periphrastic passives, and productive uses of the *-sja* particle. Even though the impersonals have traditionally been largely ignored in voice studies, because the verb looks active and the argument structure is prototypical, we have included them to show the common semantic thread that motivates all of these variations: they all reflect, to one degree or another, particular semantic characteristics of the source of the action. For plural impersonals, the source must be an indefinite human entity. For neuter impersonals, it is a referential natural force. For the

passive, we saw a tendency towards situational agents and adversative semantics. For the middles, we found (not surprisingly) that the source lies within the subject-undergoer. Note how subtle gradations in the typicality of the agent in terms of animacy and individuation are expressed by the set of voice constructions.

If we look at this group of constructions as bifurcated into two groups, those traditionally considered as voice and those not, we find an interesting correspondence: those not traditionally considered voice per se, the impersonals, are more agent-oriented in that the verbs have active morphology and in that the restrictions on their use are located entirely within the agents, while those traditionally considered voice, the passive and *-sja*-marked middle, are more patient-oriented in that they have derived verbal morphology and in that a patient is always in subject position. This situation reveals a covert bias that has long characterized voice studies: that marked 'voices' are just those constructions that have promotion of a non-agent to subject. Huang and Davis (1989) suggest that the 'set' of voices for a language may be thought of as composing 'an abstracted image of what constitutes an EVENT in that language.' From this point of view, we can see that Russian has an event structure organized around distinctions in the properties of the source or cause of that event, regardless of what participant role that source lies within. It is this organization which motivates the voice system of Russian.

CONTRASTIVE ANALYSIS OF JAPANESE AND ENGLISH RELATIVE CLAUSES IN DISCOURSE

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Previous studies of English and Japanese relative clauses have only emphasized their structural differences, such as differences in the use of relative pronouns and the order of relative clauses and their head noun phrases. However, the differences are not limited to these superficial ones. For example, look at Sentence (1).

(1) Awatefutameita watasho ga . . . ayamatta . . . .
I, who was upset, apologized [to him]. . . .
(Yomiuri Shinbun, March 19, 1990)

Sentence (1) "I, who was upset, apologized to him" is very awkward in English, if not impossible. However, such modification of personal pronouns and names is perfectly grammatical and is commonly used in Japanese. This is just one indication that the use of relative clauses differ in the two languages. The language-specific characteristics of relative clauses definitely need more attention.

In this paper I will investigate the characteristic use of relative clauses in English and Japanese discourse and discuss their differences in usage and function. In so doing, I will discuss, following Fox and Thompson (1989ab, 1990), how language specific features such as word order interact with human cognition processes to determine the grammar of a language. First, I will review the cognition model proposed by Fox and Thompson, and then apply it to the case of Japanese in comparison with English. I will then consider some possible explanations for usage of Japanese relative clauses that are considered peculiar to Japanese, focusing on modification of personal names and pronouns and heavily-modified nouns in subject positions. The data I will use are from newspaper articles, a short novel and some essays.

In their study of English relative clauses, Fox and Thompson (1989ab, 1990) claimed that the choice of relative clause types that English speakers use is not random but is governed by information flow, which was earlier discussed by Chafe, Prince and others (Chafe, 1976, 1987, DuBois 1987, Givon 1979, 1983, 1984, and Prince 1981). Let us first look at two examples of relative clauses, categorized according to grammatical roles. Please look at examples 2 (a) and (b).

(2) (a) Subject head - Object relative:
probably **the only thing**$_i$ [you'll see (e_i)] is like the table
(b) Subject head - Subject relative:
the store$_i$ [that (e_i) sells it] is not responsible
(from Fox and Thompson 1989a, p. 13)

In these examples, the head nouns in bold face are in the subject position of a matrix clause, so they are called subject heads. On the other hand, in (a) the object is relativised while, in (b), the subject is relativised. Thus, they are called object-relative and subject-relative, respectively. Let us now call these two types of relative clauses type (a) and (b) for ease of reference. Now, look at Table 1.

Table 1: Distribution of Non-Human Referents

	Subj/rel	**Obj/rel**	Other	Total
Subj/head	5 (13%)type b	**30 (77%)**type a	4 (10%)	39 (100%)
Obj/head	51 (49%)	46 (44%)	7 (7%)	104 (100%)

(Table 1, p. 4, Fox and Thompson 1989a)

Notice that type (a) occurs much more frequently than type (b): Type (a) accounts for fully 77% while type (b) accounts for only 13%. What is the reason for this difference?

Fox and Thompson attributes the skewing to information flow and its relation to the word order of English, among other factors. They claim that in order for a conversation to be successful, the head of a relative clause must be made relevant to the ongoing conversation, or "grounded" in Prince's terms, by being explicitly related to discourse entities in prior talk. They further assert that this need for grounding calls for only certain types of relative clauses.

Now, let us examine the structure of a subject-head relative in English. Please look at item (3):

(3) NP [relative clause] Verb of main clause.

We need to explain why the relative clause in here is more likely to be an Object Relative, and not a Subject Relative, when the NP is non-human. Since the head NP is positioned at the beginning of the sentence in this case, it needs to be grounded by the relative clause that modifies it. Let us consider now what types of relative clauses can ground them best. Recall that we are discussing the specific instance where the heads are non-human and that, in discourse, they are usually made relevant in terms of the humans who own, use and manipulate them. Therefore, Non-human NPs are most likely to be introduced as objects, and so require Object Relatives. That is, relative clauses like type (a) are more likely to occur than type (b). In Example (a), the head NP is made relevant to the conversation by being an object that "you'll see." In type (b), on the other hand, the subject relative merely characterizes or identifies the head NP, "the store." These differences in function, thus, explain the high percentage of occurrence of type (a), subject head-object relatives, in Table 1.

The lack of such skewing with object-head utterances is explained similarly. Look at item (4), the construction of the object-head relative:

(4) Subject Verb NP [relative clause]

Notice that in this case, the head NP can be grounded by the subject and verb of the main clause. It is not necessary for a relative clause to ground the NP by object relativization. Rather, it can be a subject relative to serve other functions, such as to characterize the referent. Therefore, no particular preference for an object relative is expected in the case of an object-head relative.

Now let us examine the distribution of types of relative clauses with human heads, particularly those of personal names. The English data come from a 247 page novel printed with fairly large print, while the Japanese data comes from two essays for a total of two pages in small print. Please look at Tables 2 and 3.

Table 2: Distribution of Human (personal names) Referents in Japanese

	Subj/rel	Obj/head	Total
Subj/head	6	0	6
Obj/head	2	0	2

Table 3: Distribution of Human (personal names) Referents in English

	Subj/rel	Obj/rel	Total
Subj/head	4	2	6
PP/Obj/head	8	0	8

Comparing the two tables, we quickly notice that the total number of relative clauses used in English is only a little less than twice the number used in Japanese, despite the fact that there were much more English data. As I mentioned at the outset, modification of personal pronouns and names is common in Japanese, and these results illustrate this point well. In what follows, using Fox and Thompson's model, I will attempt to find an explanation for the differences between the two languages.

Let us first examine again the structures of English relative clauses, and consider, following Fox and Thompson's hypotheses, how head NPs are grounded in the case of humans. Please look at item (5).

(5) English:
Subject head: NP [relative cl.] Verb
Object head: Subject Verb NP [relative cl.]
PP head: Subject Verb PP NP [relative cl.]

Now let us consider how head NPs in these structures will be grounded. Notice the lack of occurrence of Object relatives in Table 3. Earlier, we discussed that, if referents are non-human, they are more likely to be object relatives, as such items are usually grounded in terms of a human. However, when the referent is human, as is the case here, it is less likely that a person will be referred to as the direct object of the other person's action. This accounts for the lack of object relatives compared to the case with non-human heads.

Then our next question is, "how are human NPs usually grounded in English?" Please look at item (5) again. As we can see, the subject and verb of the main clause precede the head NPs in Object and PP Head relatives, and so can ground them. Therefore, we can expect that introduction of human NP's are most likely by PP/Obj Head relatives. The fact that PP/Obj Head relatives occur twice as often as Subject heads, 8 vs 4, seems to support this hypothesis. In addition, since the head NPs are grounded by the matrix elements in PP/Obj Head relatives, the relative clauses are more likely to be subject relatives to characterize them, rather than grounding the head NPs. This will also explain the frequent occurrence of PP and Object Heads with Subject Relatives.

Why then do Subject Heads occur more often than Object Heads in Japanese? How are Japanese Head NPs grounded? Let us begin by examining the relative clause structures of Japanese. Please look at item (6).

(6) Japanese:
Subject head: [relative clause] NP Verb
Object head: (Subject) [relative cl.] NP Verb

Notice that, in contrast to English, Japanese relative clauses precede their head nouns so they can help ground the head nouns at all times. Therefore, they need not be grounded by Object Head relative clauses, as in English. But we also need to notice that subject heads always occur in conjunction with subject relatives. We discussed how Subject Relatives usually characterize the head NPs but do not "ground" them. I hypothesize that Japanese subject relatives, unlike those in English, can provide a grounding function. Please look at the next Example (7).

(7) Nantoka shinjuku-ku ni aru Nihongo gakkô ni tadoritsuita] **L-san** wa, okâsan to onêsan no kitai ni kotaeru no ga sô kantanna koto dewa nai koto o chokkan de satotta. [Nani yorimo saki ni shukuhaku mondai o kaiketsu shinakereba naranai to kimeta] **L-san** wa, "onna no chie" o shibotta.

Ms. L, [who had at last made it to a Japanese school which was in Shinjyuku ward,] sensed that it was not a very easy thing to meet the expectations of her mother and older sister. **Ms. L**, [who had decided that she must first resolve the housing problems above everything else,] tried hard at her "wisdom of women."

The use of relative clauses in this example is natural in Japanese, yet their retention in the English translations is awkward. I propose that the differences are due to the functional differences of relative clauses between Japanese and English, that is, the Japanese Subject Head-Subject Relative helps ground its head noun by setting a frame. Compare Sentence (7) with (8):

(8) When she arrived at a Japanese school in Shinjyuku, Ms. L realized that it was not too easy to meet the expectations of her mother and older sister. Realizing that she must first resolve the

housing problems above everything else, she tried hard at her "wisdom of women."

Notice that the contents of Japanese relative clauses are better expressed in English by separate adverbial clauses. In other words, Japanese relative clauses set up a situational frame and help ground their head nouns, which follow them. This hypothesis supports Matsumoto (1988), who claims the importance of semantic "frames" evoked by linguistic clues in understanding Japanese relative clauses. Therefore, notice that Japanese relative clauses often give crucial information to understanding the sentence and thus cannot be deleted.

On the other hand, English relative clauses which modify personal names often only add unimportant information rather than setting a frame. Look at Examples (9) and (10).

(9) And he left with Gloria, who had changed her . . . T-shirt which became soiled at dinner, to a cleaner . . . T-shirt. (p. 90)

(10) He had a consultation with Thelma, who confirmed what did not require much confirmation for Ted--that Joanna obviously was not seeking to return to his arms. (p. 123)

In Example (9), what is expressed in the relative clause has no relation to what is happening at that time. Essentially, we could leave it out. In Example (10), what is expressed in the relative clause is a result of his consultation with Thelma, and we could rewrite it as in Example (11):

(11) He had a consultation with Thelma, but she confirmed what did not require much confirmation for Ted.

This usage is possible in English, as a relative clause follows its head noun. On the other hand, Japanese, where a relative clause precedes its head noun, has no equivalent use for this. These facts, that Japanese relative clauses provide frame or background information and that English relative clauses express what happened later, are reasonable considering information flow and the cognition process. Table 4 summarizes the functions of the relative clauses examined and illustrates these points.

Table 4: Function of Relative Clauses (head = personal names)

	additional info.	frame	resultative	Total
Japanese rel. cl.	2	5	0	7
English rel. cl.	11	0	3	14

Similar phenomena are also found in newspaper articles. I have collected several articles on crime from Japanese and English newspapers, and compared the use of relative clauses in them. While modification of personal names is found in both languages, their usage is quite different. Please look at the following examples:

(12) Lori Lashinsky, who lives with her husband and their children in Victorville, said crime has been increasing. . . . (LA Times, May 3. 1989)

(13) The prosecutor described Kraft, who has an unusually high IQ of 129, ... (The Billings Gazette, May 13, 1989)

(14) The grim discovery. . . . ended a . . . search for Nadia Puente, who had been strangled and sexually molested, Police said. (LA Times, March 22, 1989)

Notice that what is expressed in the relative clauses in these examples are long-term states, such as living and IQ's. They only add information which is not crucial to understanding the whole sentence. In Japanese news articles, on the other hand, the relative clauses that modify personal names express action and temporal states, which help set up frames. Please refer to the following examples:

(15) *Chieko chan to onaji mansyon no ikkai shita no 203 gô shitsu ni sundeite, tôka asa, torakku de hikkoshita* ***Arimura*** *ga fushin jinbutsu to shite ukabi, ...*

(**Arimura**, who lived in Room 203, one floor below, in the same apartment building as Chieko's, and moved out by truck on the morning of the tenth, was pointed out as the suspicious person, ...)
(*Asahi shinbun*, Oct. 2, 1987)

(16) *sarani, tome ni haitta* ***Tomie****-san wa, momiai no toki, hidarite no koyubi o setsudan sareta. . . .*
(Further, **Tomie**, who tried to interrupt [their fight], had her little finger of her left hand cut off during the struggling)
(*Asahi shinbun*, Nov. 4, 1988)

(17) *Toyonakashi no jitaku chikaku made chijin no kuruma de okurarete kita* ***Kengaku****-san mo, tsurekonda.*
(Mr. **Kengaku**, who was driven near to his home in Toyonaka-city in his acquaintance's car, was also taken into [the room].)
(*Asahi shinbun*, Oct. 18, 1988)

Table 5 is a summary of the use of relative clauses in the two languages in this aspect and shows that the types of verbs used in them differ considerably :

Table 5: Functions of relative clauses found in crime articles

	Action/temporal state	Stative	Total
Japanese (8)	17	3	20
English (8)	4	10	14

As seen in the table, the use of relative clauses in the two languages seems to be quite different.

In this paper I pointed out that relative clause constructions in Japanese and English are different in their functions and that by using the same term for syntactically similar phenomena, we may overlook critical differences between them. In an attempt to offer explanations for such differences, I examined the cognitive model proposed by Fox and Thompson and argued how it can explain the characteristic usage of relative clauses found in Japanese and English discourse data. In so doing, I demonstrated how language specific features such as word order, combined with language-preference structures, can interact with human cognition to determine the grammar of a language.

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The Relativizing Complementizer mapu in Tarahumara Discourse

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In this paper I will examine the morpho-syntactic and semantic evidence of event embedding in Tarahumara, a Southern Uto-Aztecan language spoken in Northern Mexico. I will be interested in complexity in Tarahumara, but also in how Tarahumara fits in typologically with complexity in other languages of the world. The data are taken largely from running narrative texts, reports, reminiscences, and comments on aspects of the culture such as how to plant corn, preparing for the rain dance, what happens to the spirit at death, etc. First we will look briefly at some simple sentences, and then focus on complex sentences. We will take a quick look at backgrounded events that identify attributes, same time/different time, location, purpose, manner, explicit comparisons, and finally complement clauses with verbs of manipulation/modality/cognition. The data will show that Tarahumara encodes the bulk of complex sentences in a homogeneous way, organizing embedded events together under a single complementizer **mapu.**

Let us start by examining a selected group of simple sentences. Sentence 1 encodes a proposition with a single asserted event **noca.** Since utterances in discourse are always contextualized, an expression of the verbal event in Tarahumara sometimes involves only the verb, i.e., often leaving subjects (and objects) unsaid when the referents are both identifiable and conscious (= Given)

```
1. 'we noca ba
   Intens work
   He is working.
```

In sentence 2 the compound expression **me'a-me ciba** is derived by incorporating an event into the nominal expression, using a stative/habitual suffix. The compound form functions holistically to identify the individual as belonging to a class, thus in effect functioning as a name.

```
2. ici kame [ me'a-me ciba ]
   this be   kill Stat goat
   He is a goat killer.
```

Sentence 3 and 4 each encodes two co-lexicalized verbal events with event raising. We can characterize the event **-nura** in sentence 3 as a manipulative (Givon 1980) event, that indicates the manipulation or control by the causing agent over the executor of the second event (cf. Figure 1). The result of the raising is a tight semantic unity that presents the proposition as a single event, in Bernard Comrie's sense of a macrosituation as opposed to a pair of microsituations that are encoded separately.

```
3. tamci nocá-nura ba    V-caus
   me    work Caus
   You are making me work. (implicative)

4. hana mukí nocá-nare pa    V-desid
   this woman work Desid
   This woman wants to work. (And is working.)
```

Sentence 4 contains, in Givon's terms, a modality event, **-nare** (that has the same subject as the co-lexicalized event **noca**). As in sentence 2, the two parts are presented as a single asserted event. This fits with the general tendency in Uto-Aztecan languages for such manipulation and modality verbs to co-lexicalize (Givon 1980:373).

In Figure 1, I have restated Givon's system for representing universal principles governing the syntactic encoding of the semantic linkage between complement taking verbs and their complements. The semantic binding hierarchy will be related to other types of embedding in Tarahumara, and thus will be relevant later in this paper.

```
Givon                 SEMANTIC BINDING SCALE
                     Implicational Hierarchy

SUCCESS  STRONG    EMOTIVE   EPISTEMIC ATTITUDE  PRESUP SEPARATE
(IMPLI)  ATTEMPT   HI----LO  STRONG--------WEAK  REL    ASSERTION

<--Manipulative------>
force-cause-demand-want

                   <---Cognitive Utterance--->
                      like-hope-know-think-say

<--Modality---------->
begin-plan-intend-want

Single Proposition<------------------------>Separate Propositions
Tight<-------------------(linkage type)-------------------->Loose


                     SYNTACTIC CODING
                 (of supplementary clause)
Dependent<------------------------------------------->Independent
  lexicalized
      nominalized
          infinitive
                subjunctives
                      free clause w/Restr
                                  free clause
                                        Adv Sub cl
                                            conjoined
            - agent marking   +comp marker
            - TAM marking      intontion
            + subjunctives

Nonsentential<---------------------------------------->Sentential
```

Figure 1

Sentences 5-9 show serial verb constructions. Sentence 5 is a manipulative event with argument raising (**tamci**), while sentences 6-9 are modality events. In each of these sentences there is a single asserted event that is holistic in both form and content.

Serial Verb Constructions

5. ici tam-ci nahki-ge ma'cina-ra
   Demo me cause ImmedPast leave Dub
   He had me leave.

6. 'we ne ra'iri kahé bahi-ma
   Intens I like coffee drink Fut
   I like to drink coffee.

7. 'we ganire uwa uhuma
   Intens I like with run
   I like to run footraces with him.

8. ma cota-bo awi-a bera ba.
   now begin PlFut dance Pres
   We are starting to dance.

9. tasi nahkí-re rapoko simi-nare
   Neg want Past yesterday go Desid
   I didn't want to go yesterday.

Backgrounded Clauses (= Srel)

Now to complex sentences -- While **binding** is a term that refers to the relating of one event to another in discourse, the term **complexity** involves the linking of one event to another event specifically within the scope of a single sentence. In actual fact, it is often difficult to tell in Tarahumara discourse where one **sentence** ends and another begins, but in general the notion sentence will be useful for delimiting a typical size level within the discourse. In complex sentences we can expect morpho-syntactic encoding of the linkage (Givon: binding) of the main clause event to the event of the linked clause. In English this encoding is accomplished, at least in part, by the choice of the complementizer used to introduce the backgrounded clause. In Tarahumara complex sentences, all backgrounded clauses are introduced by a single complementizer **mapu**. Thus the variety of the content of the propositional linkage of the two events must be encoded in some other way.

HeadNP + [mapu Srel] (identification)

Sentences 10-12 contain relative clauses that are linked to their main clause heads by a proposition of **identification.** This relation is indicated by the order of elements; the relative follows the HeadNP. Sentence 10', on the other hand, involves a proposition of **naming** or **defining**; its relative clause precedes its HeadNP.

10. ane maací miná rehoi [mapu tomóbile buku-ra]
    Pos know that man vehicle own Abs
    I know the man who owns the truck.

10' miná [tomóbile buku-ra] rehoi
    Demo truck own Abs man
    He is the man owning the truck.

11. hana hu ciba [mapu me'á rehoi]
    this be goat kill man
    This is the goat that the man is killing.

12. miná hu mukí [mapu uwa ra'íca-re rehoi]
    that be woman with talk Past man
    That is the woman the man talked to.

Sentences 13-15 are relative clauses that identify antecedents exhibiting quantity/size/type. Tarahumara uses classifiers as post clitics with **mapu** to specify the antecedents with respect to these categories. (The corresponding question words are also built around these same classifiers; cf. **ci-ki-pu** 'how many?; **ci-curú** 'how big?; **ci-yiri** 'what kind?, respectively.)

HeadNP + [mapu-kí Srel] (quantity)

13. a'rí iya nihi-re cihoonsa-go awa-ra co'mari-ko sineame [mapu-kí m
soon quick give Past then antlers Abs deer all Quant manner
Then all the rabbits (that there were), that walked around like that with

ka-ré] [api-kí awe-a arigá ena-re] rowí pa
be Past Quant antler Stat thus go Past rabbits
antlers, gave the deer (pl) their antlers.

HeadNP + [mapu-curú Srel] (size)

14. basací o'rú reteo ru [mapu-curú ohí]
coyote big see size bear
I saw a coyote that was the size of a bear./as big as a bear.

(HeadNP) + [mapu-iri Srel] (type)

15. cihoonsa baasu-re sehkori-ci [mapu-iri muní] kó-ge-re ko're-'am pa
then cook Past clay pot Loc type bean feed Past kill Prtc Junct
Then they cooked some things in a pot, that were/looked like beans, and fed
(them to the giant) to kill him.

Head + [mapu-a'rí Srel] (same time)

Sentences 16-18 contain relative clauses that predicate congruency or sameness of the time of the secondary event with that of the event of the main clause. **a'ri** is normally a temporal expression meaning 'soon' or 'late' or 'later'.

16. ki'á sinei [mapu-a'rí eena o'rú rehoi kuci mu'tú -si -ria -rá -e]...
Before all Sim walk hugh man children take in arms Tm Pass Dub Quot
A long time ago when there was a giant walking around picking up children in
his arms...

17. ...ke na'áwa-ga [mapu-a'ri-tum bahí]
neg fight Sim you drink
...said, not to fight, when you drink...

18. ...eera co o'kó-a-rá [mapu-a'rí nakoa noka umugí] [kupa-ra co'tú-a-ra
mother also hurt Stat Dub Sim war make women hair Abs pull Pass Dub
...that our Mother also might suffer when the women fight each other (and if
they) pull each other's hair...

Head + [mapu (-goná) Srel] (same location)

Sentences 19-20 are complex sentences that are linked by a proposition of congruency of place of the two events/states.

19. gáriga goná Gasátari ku- bo'ó -ri mo'ina-bo [mapu ripú ahtí]
around to Gasatari back across slope climb Fut ripu sit
Around to Gasatari we cross and climb up to where the hallowed stone pile is.

20. ma me'a-re mi ga'ó [mapu-goná behte-re] wa'ru-be-ra...
now kill Past there Place live Past big Intens Intens
Then they killed the giant over there (up in front of the cave) where he lived.

Head + [mapu-sí Srel] (different time/location)
In sentence 21, the proposition linking the main clause event and the linked clause event is one of divergence in time (T_1 + [T_2]). **mapu-sí** indicates that the backgrounded event time is later than that of the foregrounded event.

```
21. pacá   'nina  ahtí    [mapu-sí  másimi ko ba ].
    inside prefer sit (T1)      T2  leave
    (The spirit) had better stay inside (grave), until he goes away.
                                                   (while not)
```

HeadS + [mapu-(ne/mu)-gita Srel](instrument/purpose/reason =different time + causal inference)

Reason (T_1) + [mapu-gita Consequence] (Tm_2) (so that)
Purpose clauses also predicate a time and/or inferential difference between the event of the backgrounded clause and that of the main clause. In sentences 22-24 the proposition linking the two events is one of **reason + consequence** (or prospect + result). Here, the reason clause precedes the consequence/result clause, and it is the consequence clause that is reduced. In sentences 25-26 it is the reason clause that is backgrounded. In neither case does the order of the clauses indicate embedding, but rather the thematic status. English encodes the dependency of asserted T_1 plus backgrounded T_2 = (T_1 + [T_2]), (examples 22-24) as **so that**, but that of asserted T_2 and backgrounded T1 = (T_2 + [T_1]) (examples 25-26) as **because**. Tarahumara, on the other hand, introduces the backgrounded clause with the marker **mapu** plus the instrumental particle **gita** in both cases, i.e., it treats them as the same, allowing either the difference in event times (sequence) or the realis-irrealis discrepancy to express the difference in the semantics of the two propositional linkages, i.e., **prospect + [result]** versus **result + [prospect]**.

```
22. wasi mi'ri-boa [ mapu-gita ke  u'kú-a-ra ]
    cow  kill Fut        Inst     rain Pass Dub
    We sacrifice a cow so that it will rain.
        (cf. It will rain, because we are sacrificing a cow.)

23. sepi   waki-gá irí pa we'é   [-gita sinéoma napai-bo pagótuame]
    Intens dry Stat be    soil     Inst all gather Fut people
    The earth is very dry, so all of people (we) come together...
        (cf. All of the people come together, because the earth was very dry..)

24. Sahwani bahkí pacá    [ mapu  'a-ma  ko'ame mukí ]
    San Juani went inside        give Fut food  women
    San Juani went inside so that the women could give him some food.
```

Consequence Tm_2 + [mapu-gita Reason Tm_1] (because)

```
25. pe nehte-ma moe-ko [mapu-gita burito rihimara kame ]
    Conj kick   you            Inst  burro  brother  be
    Well, you (rabbit) are always kicking, because you are the brother of a donkey.
         (cf. You are the brother of a rabbit, so you are always kicking.)


26. tam 'nina  ci 'á kiri awa-ra ba [(mapu)gita nehé o'rú kam pa, muhé taa kam pa]
    me preferably me give  horn Abs       Inst  I   big  be      you little be
    You'd better give me your antlers, because I'm big and you're little.
```

Head + [mapu-regá Srel] (prospect T_1 + [result T_2]) (for to)
Likewise in sentences 27-28 there is a proposition of **prospect + result** (that is enabled by a time discrepancy) linking the two events. The prospect clause

precedes the result clause which is backgrounded. In sentence 27 'Having the money' is logically and temporally prior to 'paying them'. As the glosses show, English encodes the proposition with **to** or **for to** , while Tarahumara introduces the consequence/result clause with **mapu** and marks it as specifying manner, i. e., with **-regá**. The effect is to encode a proposition of prospect and result that does not include the notion of intentionality (to pay), which would result from the embedding of the prospect clause in an if/then predication (using **mapu-ré** as in sentences 34-35). The English partial paraphrase showing intentionality would be 'If there were enough money, I would pay them'.

```
27. hipi-go kaci ni-ma ehka winomí pa [mapu-regá  nahte-ti-ma ba]
    today   Neg  be    intens money        manner pay  Pass Fut
    Today there's not enough money to pay them.

28. we ehka kame [ mapu-regá   ne éna-ma rara-gá ]
    Intens far be        manner I  go Fut buy Hyp
    It's too far for me to go buy it.
```

Cmp + [mapu-ré/regá/simí/irí Std] + (Cmp) (explicit comparison)
The proposition linking the states/events in sentences 29-33 involves the comparison (sameness/difference) of the **compared** event with the **standard** event. Sentences 29-30 and 32 centrally embed the standard event inside the compared event, while sentence 31 appends the reduced standard at the end. The result of the right branching embedding is to encode the standard event as more sentential and thus more assertive than its centrally embedded counterpart.

```
29. mina-ko [ mapu-regá éera ]   we    mací      á
    Demo           manner mother Intens know how sew
    She can sew well like her mother.

30. rowí [ mapu-simí cihkuri ] cigo-re
    rabbit      do   rat      steal Past
    The rabbit robbed me like a rat.

31. miná sewá  [ mapu-ré  asúkara]  rosákam kame
    Demo flower        Mod  sugar    white
    The flower is white like sugar.

32. sinei kia-ko  rowí    awé-ame    ke  [mapu irí co'marí ]
    Before earlier rabbits horn Stat be      type  deer
    A long time ago rabbits had antlers, like the deer now have.
```

[mapu-ré Srel sa-gá] + (mapu-gita) S (condition/result)
In sentences 33-34 the predicated linkage between the two events is that of **condition** (real/irreal) + **result**. The backgrounded conditional event is marked as such by **mapu-ré** and normally precedes the main clause. The mood/tense sequence in both sentences is Hypothetical + Future, but in sentence 34 the resultative/-stative suffix **-gá** marks the event as less counterfactual than the hypothetical event in example 33.

```
33. [ mapu-ré lola nóna-sa-gá ]  'a-ma    ko'-am pa éera ba
          Mod Lola come  Hyp    give Fut  eat Stat mother
    If Lola had come, her mother would have given her some food.

34. [ mapu-ré rehoi pacá bahkí-gá-sa-gá ] mapu gita mukí ma'cina-ma
         maybe man inside go  Resul Cond        Inst woman  leave Fut
    If the man goes in, the woman will leave.
```

V + [mapu Scomp] (manipulative events/cognitive utterances)
Sentences 35-45 are arranged in accord with Givon's Semantic Binding Hierarchy (cf. Figure 1). Each of the three types of 'complement taking' events occurs together with dependent events that are syntactically encoded with reduced status in discourse. **Manipulative** events like **make, cause, force, demand**, and **want** tend to be high on the semantic binding scale. Agents of manipulation events have strong agency (agentive control, agent success, and agent independence), and the manipulated events themselves are encoded with dependent status (either morphologically by raising or incorporation, or syntactically by dependent clause marking). They are typically backgrounded as opposed to the foregrounded asserted events. **Modality** events, like **begin, plan, intend**, and **want** involve self inducement and thus require identity of the two agents. Agents of modality events are thus more passive (or middle) than those of causative events. With **cognitive events** like **think, know, hear**, and **say** there is no contact between the experiencer of the complement taking event and the agent of the complementary event. Typologically, cognitive events tend to be lower on the binding scale than causative and modality events, and thus tend to receive more separateness of encoding while remaining semantically and syntactically dependent.

Manipulative events are linked to their complements by propositions of cause and effect. In Tarahumara the implicative causative event **-nura** is morphologically encoded (cf. sentence 3). The complements of nonimplicative causatives are encoded with dependent clause status. They are introduced by **mapu** as is shown by examples 35-37. Event sequences in 35-37 are all Past + Future or Dub.

```
35. nehé rapoko    nahki-re [ mapu  ma'cina-ra ]
    I    yesterday want Caus      leave  Dub
    I wanted him to leave yesterday. (nonimplicative, cf. serial verb in #5.).

36. ana nahki-wá-are [ mapu ana'í re'e-bo ]
    Pos want Pass maybe      here play Fut
    It is desirable for us to play here.
    They want us to play here./ It is allowed that we play here.

37. nura-re      [mapu ku-nona-ra ]
    cause Past      back come Dub
    She required that he return. (nonimplicative, cf. co-lexicallized verb in #3.)
```

As we have seen from (the simple) sentences 6-9, **modality** events in Tarahumara do not occur with complements having dependent clause status. Their cooccurring dependent events are all encoded morphologically (with suffixes) or syntactically in serial verb constructions, and are thus not marked as backgrounded clauses by the complementizer **mapu**.

All **cognitive utterance** events in Tarahumara, like examples 38-41, have complements that are marked with **mapu** except for verbs of saying/asking (cf. examples 42-45).

```
38. we    ga'rá hu aré  [ mapu rakirín   uba-re ]
    Intens good be Mod         Rankirino bathe Past
    I think it's good that Rankirino took a bath.

39. tasi newaré [ma-mu ku'íru-ma ]
    Neg  need        thou help Fut
    I don't need for you to help me.
```

40. masirina ke tasi kío-ru [mapu noca-ma rehoi siné rawé]
Masirina Neg know work Fut man all day
Masirina wasn't sure that the man had worked all day.

41. Sahwani ake-re [mapu ku-norina]
San Juani hear Past back arrive
San Juani heard that she was coming back.

Vsay + 0 Scomp (cognitive utterance: indirect quote)
With events having illocutionary force, like examples 42-45, there is more assertiveness attributed to the reported event in Tarahumara, therefore more independence in the encoding; hence no **mapu** complementizer in Tarahumara.

42. rú-ane [okwá húma-rá-e nariri]
say utter two run Dub Quot left side
She told me that two men were racing there on the left.

43. rua aní-aní [bo'o-na-ka irí-ga-rá gari-ki]
say utter on that side stand Stat Dub house
He says that the house is over on the other side of the canyon.

44. Benito we garé-ame hu. ko pu aní [noná-ma-rá-e] rúcane
Benito Intens lie Stat be say come Fut Dub Quot say
Ben is a big liar. He told me that she was coming.

45. nehé aní-re-ke ke n mací bowé.
I say Past Fact Neg I know path
I said I didn't know the way.

HeadNP + 0 Srel (Nonrestrictive Srel)
naming: supplementary identification.

46. mi kai-si biré behté-ame [sebariko re-am ke]
there up also one live Sebariko called be
A guy lives there on the slope, whose name is Sebariko.

Conclusion
I have attempted here to survey the major types of embedding that occur in Tarahumara discourse and to indicate the role that the complementizer **mapu** plays in such embedding. Figure 2 summarizes the types of event embedding in Tarahumara that I have discussed.

One approach to describing the function of **mapu** as a relativizing complementizer in Tarahumara is to view it as essentially polysemous and line it up as having, ------ **-etically**, all of the meanings of the English dependent conjunctions. This is apparently the approach taken by most students of Tarahumara so far, including David Brambila, and Don Burgess, among others. Brambila's dictionary and grammar contain a multitude of separate meanings for **mapu**. The approach taken here is to view **mapu** as a general and ubiquitous marker of reduction/ backgrounding/ mention/ weak assertion of events, and to view the separate meanings associated with differing propositional linkages between clauses in complex sentences as being necessarily encoded by additional means. **mapu** thus designates all of the clauses that it introduces as being the same, even though they are also semantically variant from case to case.

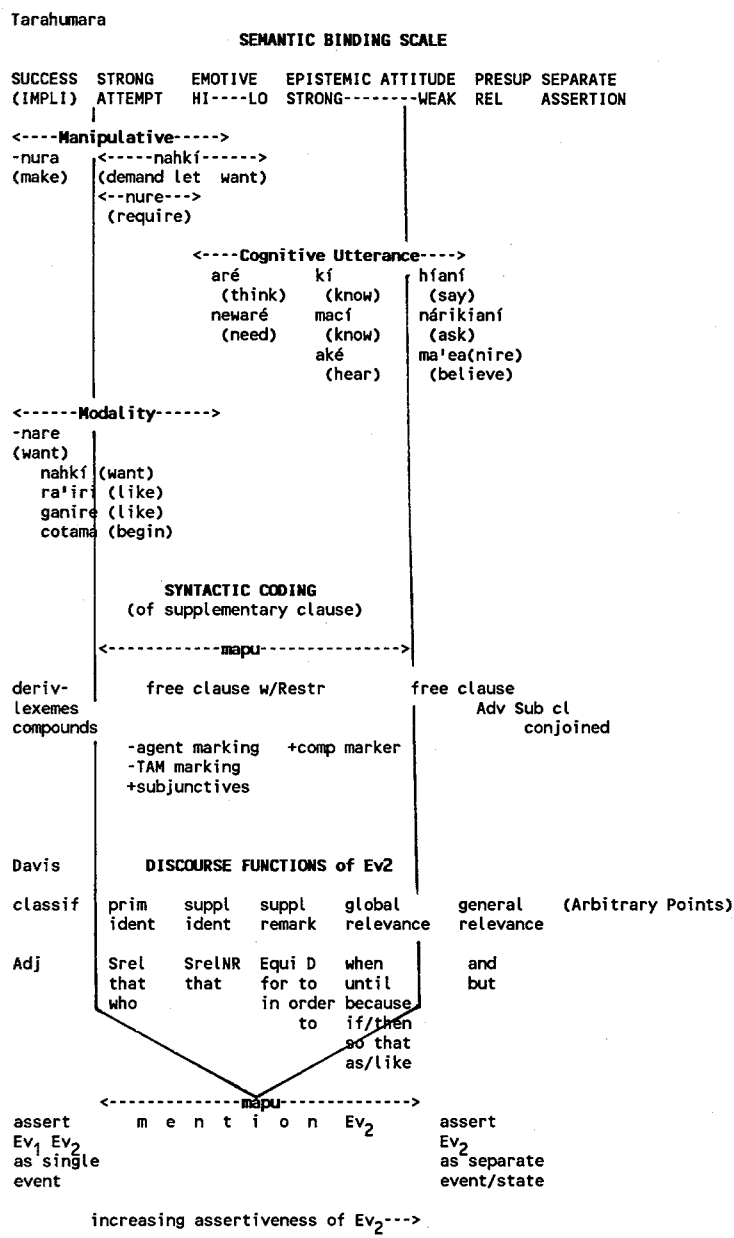
Tarahumara
SEMANTIC BINDING SCALE
SUCCESS (IMPLI)
STRONG ATTEMPT
EMOTIVE HI----LO
EPISTEMIC ATTITUDE STRONG--------WEAK
PRESUP REL
SEPARATE ASSERTION
<----Manipulative----->
-nura (make)
<-----nahkí------>
(demand let want)
<--nure--->
(require)
<----Cognitive Utterance---->
aré (think)
kí (know)
híaní (say)
newaré (need)
mací (know)
nárikianí (ask)
aké (hear)
ma'ea(nire) (believe)
<------Modality------>
-nare (want)
nahkí (want)
ra'iri (like)
ganire (like)
cotama (begin)
SYNTACTIC CODING
(of supplementary clause)
<----------mapu---------->
deriv- lexemes compounds
free clause w/Restr
free clause
Adv Sub cl conjoined
-agent marking
+comp marker
-TAM marking
+subjunctives
Davis classif
DISCOURSE FUNCTIONS of Ev2
prim ident
suppl ident
suppl remark
global relevance
general relevance
(Arbitrary Points)
Adj
Srel that who
SrelNR that
Equi D for to in order to
when until because if/then so that as/like
and but
<----------mapu---------->
assert Ev1 Ev2 as single event
m e n t i o n Ev2
assert Ev2 as separate event/state
increasing assertiveness of Ev2--->

Figure 2

As sentence 39 shows, **mapu** takes the shortened form **ma** when it occurs in clauses with other than 3rd person subjects (**ma-0-ne/ma-0-mu/ma-0-tum/ma-0-ta**, 1st and 2nd person sg and pl); and **-pu** occurs in a way not well understood on question words like **ki-pu** 'how many' and **ye-pu** 'who'.

One possibility for understanding the role of **ma/mapu** is to look at the free particle **ma** in its aspectual functions in Tarahumara discourse. **ma** often appears initially in main clauses, and typically has an aspectual meaning weakly paralleling that of **already**, or **now** in English, indicating resultativeness or stativity (cf. Examples 8, 20). Now, backgrounded clauses also tend to be more resultative than their more transitive main clause counterparts, suggesting that the aspectual particle **ma** could possibly be the same morpheme **ma/ mapu** that introduces embedding in the complex sentences of Tarahumara.

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Word Boundary in Japanese*

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1 Introduction

Given the agglutinative nature of Japanese, especially for predicates, identifying a word boundary is a difficult but an important task in analyzing the language. For instance, it varies among syntacticians as to what constitutes a complement construction especially when the construction in question is a complementizer-less construction, such as the V-te V construction and the Vi V construction[1] as found in (1) and (2) respectively.

(1) John ga hon o yon-de i-ru.
Nom book Acc read-GER exist-PRS
`John is reading a book.'

(2) John ga hon o yom-i kake-ta.
Nom book Acc read-CNJ start-PST
`John started reading a book.'

This paper aims to present and discuss several tests that can be applied to determine whether these constructions actually involve a word boundary in their predicates and hence are genuinely considered to form "complement constructions", based on the conventional definition of "complementation" that it is a syntactic structure in which a clause modifies a predicate (Predicate/Sentence complement construction) or a noun (Noun complement construction).

The paper will first present the range of constructions which have been called "complement constructions" in Japanese. It will then focus on the structures without clear clause boundaries in their predicates and apply word boundary identification tests to determine their syntactic structures.

2. The range of complement types in earlier studies

Among the earlier studies on complement constructions in Japanese, Smith (1970), Nakau (1973), and

Inoue (1974) are the only ones which list types of complement construction. There are, however, differences among them in the terms they use to refer to a given structure, which can be confusing to readers. Therefore, the following Table is presented to capture the whole picture clearly. The first column, "structure", contains a common description of the construction as an attempt to neutralize the differences of terminology. The examples which follow the table are mine, but I have ensured that they are within the same patterns used by the authors. Clause boundaries are also marked with square brackets, but again, I have ensured that they do not deviate from the claims, if any, made by the authors. When deep and surface structures are postulated, the marking is based on the deep structure. Hyphenation is also entered in such a way that it does not contradict the original sources. Some of them, thus, do not agree with my own judgment as to the position of the morpheme boundary.

Table 1

The range of complement types in earlier studies

Structure	Example number	Smith	Nakau	Inoue
(A) Structures with clear boundaries				
[S] to	3	to complement	Predicate sentential complement (P.S.C.)	Type II
[S] yoo-ni	4	---	P.S.C.	---
[S] da	5			
rasi-i	6	---	P.S.C.	
[S] no	7	---	Noun sentential complement (N.S.C.)	Type II
koto	8			
[S] tokoro	9	---	N.S.C.	---
[S] toyuuno	10	---	---	Type II
toyuu-	11			
koto				

Table 1 (Continued)

Structure	Example number	Smith	Nakau	Inoue
(B) Structures without clear boundaries				
Vi V	12	---	P.S.C.	Type I: Infinitival complement
V-te V	13	-te complement	P.S.C.	Type I: Gerundive complement
Complex predicate	14,15	Suffixing complement	P.S.C.	Type I: Stem complement

Examples:

(3) John ga [Mary ga nige-ta] <u>to</u> it-ta.
Nom Nom run=away-PST say-PST
`John said that Mary ran away.'

(4) John ga Mary ni [nige-ru] <u>yoo-ni</u> susume-ta.
Nom Ltv run=away-PRS advise-PST
`John advised Mary to run away.'

(5) [Mary ga amerika-jin] des-u.
Nom American COP-PRS
`Mary is an American.'

(6) [Mary ga amerika-jin] rasi-i.
Nom American seem-PRS
`Mary seems to be an American.'

(7) John ga [Mary ga nige-ru] <u>no</u> o mi-ta.
Nom Nom run=away-PRS Acc see-PST
`John saw Mary running away.'

(8) John ga [Mary ga nige-ta] <u>koto</u> o bakuroshi-ta.
Nom Nom run=away-PST Acc disclose-PST
`John disclosed that Mary ran away.'

(9) John ga [Mary ga nige-ru] tokoro o tsukamae-ta.
Nom Nom run=away-PRS Acc catch-PST
`John caught Mary when she was about to run away.'

(10) [Mary ga nige-ta] toyuuno wa uso da.
Nom run=away-PST TOP lie COP
`It is a lie that Mary ran away.'

(11) [Mary ga nige-ta] toyuukoto ga wakat-ta.
Nom run=away-PST Nom known-PST
`It was known that Mary ran away.'

(12) John ga [hon o yom-i] kake-ta.
Nom book Acc read-CNJ start-PST
`John started reading a book.'

(13) John ga [hon o yon-de] i-ru.
Nom book Acc read-GER exist-PRS
`John is reading a book.'

(14) John ga [ame ni fur-]are-ta.
Nom rain Ltv fall-PSV-PST
`John was rained on (It rained on John).'

(15) John ga [Mary ni Bill o but-]ase-ta.
Nom Ltv Acc hit-CAUS-PST
`John made Mary hit Bill.'

The structures listed in Table 1 as those with clear boundaries are clearly identifiable as complement constructions. Look at examples (3) and (7) (repeated below), for instance.

(3) John ga [Mary ga nige-ta] to it-ta.
Nom Nom run=away-PST say-PST
`John said that Mary ran away.'

(7) John ga [Mary ga nige-ru] no o mi-ta.
Nom Nom run=away-PRS Acc see-PST
`John saw Mary running away.'

In these examples, inflected forms of the verbs, nige-ta in (3) and nige-ru in (7), marked with tense-marking inflectional morphemes -ta and -ru, are found in a non-sentence-final position. This indicates that there is a clause boundary within the sentence, and it is right after the inflected verb, since Japanese is a verb-final language. This structure satisfies the definition of a complement construction spelled out in the introduction--a syntactic structure in which a

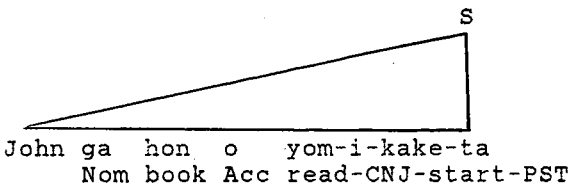
clause modifies a predicate (it-ta in (3)) or a noun (no in (7)).

Some of the structures, however, do not have such a clear marking of the clause boundary within a sentence, and are listed in Table 1 as "structures without clear boundaries". It needs to be determined whether these are in fact forming complement constructions. The following section examines this issue by presenting several criteria which provide empirical evidence to the conclusion to be drawn. The structures to be examined are the Vi V construction and the V-te V construction. The complex predicate construction will not be discussed here because this leads to an endless debate between the lexicalist vs. transformational approaches in syntax, and it is not my intention to discuss it in this paper.

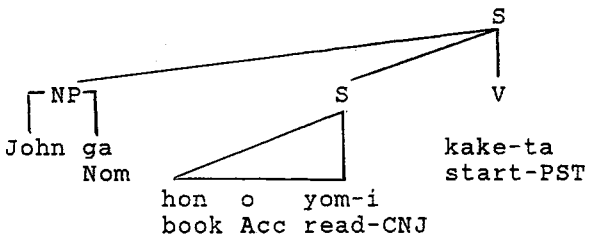
3. The Vi V construction

Nakau (1973) and Inoue (1974) have identified the Vi V construction as a complement construction whereas Smith (1970) has excluded it from his list as shown in Table 1 earlier. None of the three studies, however, provides any argument for their respective positions. I will argue for the position that ViV should not be viewed as forming a complement construction. My argument is based on the evidence that there is no word boundary between Vi and V. This consequently determines the structure for the construction to be a simplex one as in (17a) rather than a complex one forming a complement construction as seen in (17b):

(17a)



(17b)



The evidence will be presented by the following word boundary identification tests:

[1] Word insertability. If another word can be inserted into an item in question, we can assume that the item is not one word, provided that the inserted word is not also part of a new compound. It turns out that modal postpositions such as wa (topic/contrastive marker) and mo `also' cannot be inserted between Vi and V as follows:

(18) *John ga yom-i wa/mo kake-ta.
Nom read-CNJ TOP/also start-PST

(An attempt to mean `John started reading (but nothing else)./John started reading also.)

This example suggests that Vi and V are forming one word rather than being two separate words.

[2] Omission in a chaining construction. If a part of the item in question can be separated and omitted in a chaining construction, we can assume that the item is not one word. For instance, is of is writing in the following English sentence can be separated and omitted in the chaining construction:

(19) John is reading and (is) writing.

We can thus confirm that is writing[2] is not one word.

Observe that the second V of the Vi V construction cannot be separated or omitted in a chaining construction as found in (20). Note that the slot for the omitted item is shown by .....

(20) *John ga yom-i ..... kak-i kake-ta.
Nom read-CNJ write-CNJ start-PST

(An attempt to mean `John started reading and writing'.)

This phenomenon thus suggests that Vi and V are not two separate words but forming one word as a whole.

[3] The abundance of lexical operations. If the item in question can undergo lexical operations such as nominalization and compounding, we can assume that the item exists in the lexicon (Ishikawa 1985) as a word. It is obvious that the Vi V construction is very

productive in nominalization as follows:

(21) Verbs Nouns

a. yom-i-kake-ru --> yom-i-kake
`start reading' `half-way of reading/ something half-read'

b. yom-i-owar-u --> yom-i-owar-i
`finish reading' `the end of reading'

This suggests that Vi and V are forming one word as a whole and hence serving as an input for such lexical operations as nominalization.

[4] The existence of idiosyncratic meaning. If the item in question involves idiosyncratic meaning in the process of formation, we can assume that the item exists in the lexicon (Miyagawa 1980) as a word since a basic assumption of generative grammar is that a meaning cannot change in the process of syntactic operations. It turns out that some of the Vi V formations present idiosyncratic meanings, in which the meaning of the Vi V form cannot be reconstructed from the individual meanings of the two Vs, Vi and V as seen in (22):

(22) a. yom-u + kake-ru --> yom-i-kake-ru
`read' `hung' `start reading'

b. tsuk-u + tome-ru --> tsuk-i-tome-ru
`push' `stop' `discover'

This phenomenon suggests that Vi V should be regarded as forming one word existing in the lexicon rather than two separate words which are formed in a syntactic operation.

[5] Pitch pattern. Shibatani and Kageyama (1988) note that lexical compounds and the complex verbal forms involving verb roots and aspectual, causative, or passive formatives are pronounced with one accentual peak, which is a characteristic of a word, as follows:

(23) a. denki + kaisya --> denki-gaisya (S & K's 12a)
elect- ricity company `electric company'

b. yomu + hazimeru -> yomi-hazimeru (S & K's 13a)
read begin `begin reading'

c. yom-aseru `cause to read' (S & K's 13b)
read-CAUS

As seen in (23b) above and also in (24) below, the Vi V construction exhibits the pitch pattern characteristic of a word.

(24) a. yom-u + kake-ru --> yom-i-kake-ru
`read' `hung' `start eating'

b. yom-u + owar-u --> yom-i-owar-u
`read' `finish' `finish reading'

Thus, this phonological phenomenon also suggests that Vi and V form one word together.

[6] The existence of other derivational processes. The conjunctive form, Vi can also enter into desiderative formation as follows:

(25) yom-i + -ta-i --> yom-i-ta-i
read-CNJ DES-PRS `want to read'

This formation is a derivational process, as the following evidence suggests:

1) It is a category-changing operation, from a verb to an adjective, which is characteristic of derivation.

2) Vi-ta-i as a whole behaves as one word with respect to the following criteria:

i) A modal postposition cannot be inserted between Vi and -ta-i.

(26) *yom-i-wa-ta-i
read-CNJ-TOP-DES-PRS

ii) -ta- cannot be separated and omitted in a chaining construction.

(27) *John ga yom-i- ... kak-i-ta-i.
Nom read-CNJ write-CNJ-DES-PRS

(An attempt to mean `John wants to read and write.')

Since yom-i-ta-i has been established to be one derived word, it gives supporting evidence that the Vi form is a derivational base rather than some kind of

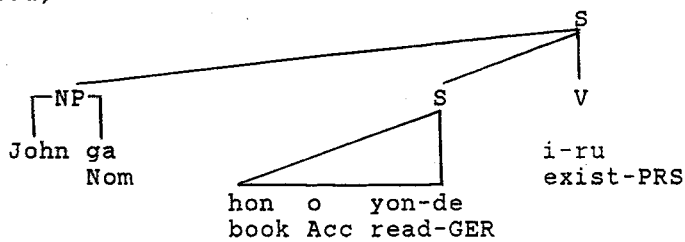
independent complement form.

Thus, all the syntactic, morphological, semantic, and phonological evidence presented above provide evidence that Vi and V form one word as a whole. The Vi V construction should thus be considered to be forming a simplex structure as seen earlier in (17a).

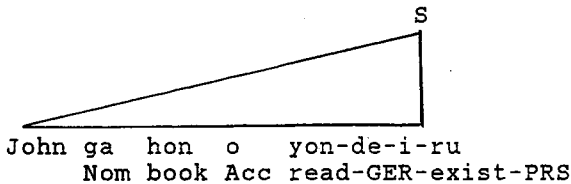
4. V-te V construction

All the three earlier works reviewed in section 2 list the V-te V construction as a type of complementation. None of them, however, puts forward any arguments for this position. Therefore, in this section I will present evidence for their position which I agree with. The argument is again based on the phenomena which reveal that there is a word boundary between V-te and V of the V-te V construction. This consequently determines the structure for the construction to be complex as in (28a) rather than a simple one, (28b).

(28a)



(28b)



The evidence will be again provided by the word boundary identification tests as follows:

[1] Word insertability. Unlike the Vi V construction, modal postpositions can be inserted between <u>V-te</u> and the second V, <u>i-ru</u>, as follows:

(29) John ga sono hon o yon-de wa i-ru.
Nom that book Acc read-GER TOP exist-PRS

`John has read that book (implying something in contrast, e.g., but he doesn't remember the contents.)'

This phenomenon suggests that V-te and i-ru are in fact two separate words.

[2] Omission in a chaining construction. Unlike the Vi V construction, i-ru of the V-te i-ru construction can be separated from V-te and omitted in a chaining construction as found in (30).

(30) John ga utat-te ..... odot-te i-ru.
Nom sing-GER dance-GER exist-PRS

`John is singing and dancing.'

This suggests that V-te and i-ru are two separate words.

[3] The absence of lexical operation. Unlike the Vi V construction, there are no lexical operations involved in this construction. This suggests that V-te i-ru should not be regarded as forming one word.

[4] The absence of idiosyncratic meaning. Unlike the Vi V construction, there are no idiosyncratic meanings associated with the construction. This again suggests that V-te i-ru should not be regarded as forming one word existing in the lexicon.

[5] Pitch pattern. Unlike the Vi V construction, there are two accentual peaks found in V-te i-ru as illustrated in (31), suggesting that V-te and i-ru do not form one word.

(31) a. yóm-u + i-rú --> yón-de i-rú
read-PRS exist-PRS `reading'

b. hanás-u + i-rú --> hanáshi-te i-rú
speak-PRS exist-PRS `speaking'

All the syntactic, morphological, semantic, and phonological evidence presented above provide evidence that V-te and i-ru are two separate words. This consequently leads to the conclusion that the V-te i-ru construction forms a complement construction in which an auxiliary verb, i-ru, is a higher predicate

subcategorized by a complement sentence which ends in V-te as presented earlier in (28a).

5. Conclusion

This paper has provided empirical evidence to identify a word boundary in Japanese. The examination of complement or complement-like constructions has reached the conclusion that the V-te V construction in fact forms a complement construction, whereas the Vi V construction does not, contradictory to the claims made by Nakau (1973) and Inoue (1974). We should thus revise the range of complement constructions in Japanese, excluding the Vi V construction from the list.

Syntactic, morphological, semantic, and phonological criteria which have been presented here can be applied not only to determine the range of complement constructions as demonstrated in this paper but also to provide evidence for any other linguistic issues where the identification of a word boundary plays a crucial role.

NOTES

* I wish to express my gratitude to Prof. Stanley Starosta at the University of Hawaii at Manoa for guiding me to focus on this problem in Japanese.

1 The V-te V construction refers to a construction in which the predicate consists of a gerundive form of V (e.g. yon-de `read') followed by another V. The Vi V construction, on the other hand, consists of a conjunctive form of V (e.g. yom-i `read') followed by another V.

2 In English, word boundary is easily identifiable since a space is inserted between words in writing. Japanese, however, does not follow this practice and hence a word boundary, especially in predicates, is not easily perceived.

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LEXEME AND ALLOLEX: TRADITIONAL vs. LAMBIAN VIEWS

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0. Introduction.

The terms PHONEME and MORPHEME have been widely, though variously, used in many varieties of Twentieth Century linguistics. This paper focuses on the term LEXEME, which certainly has not had as wide a currency. The following definition is given for this term in Crystal 1985: 178:[1]

> A term used by some linguists to refer to the minimal distinctive unit in the semantic system of a language. Its original motivation was to reduce the ambiguity of the term word, which applied to orthographical/phonological, grammatical, and lexical levels, and to devise a more appropriate term for use in the context of discussing a language's vocabulary. The lexeme is thus postulated as the abstract grammatical unit underlying such sets of grammatical variants as *walk*, *walks*, *walking*, *walked*, or *big*, *bigger*, *biggest*. Idiomatic phrases, by this definition, are also considered lexemes (e.g. *kick the bucket* (='die')). Lexemes are the units which are conventionally listed in dictionaries as separate entries.

Crystal's entry concludes with references to the work of the British linguists John Lyons and Peter Matthews. Lyons has in fact discussed this concept in his two general textbooks (1968, 1981) and in his more specialized two-volume study of semantics (1977). The reference to Matthews (1974: Ch2) makes explicit its agreement with Lyons's usage, and further traces the term to Whorf 1938, which characterized this unit as 'the word or stem as an item of the vocabulary, and as a part analyzed or abstracted from sentence words'.[2]

At least implicit, and often explicit, in all these discussions is a comparison of the proposed lexeme with other units of structure whose names end in the same suffix, especially the phoneme and the morpheme. If this comparison is valid, we should expect to find that just as phonemes and morphemes commonly have variant forms, their allophones and allomorphs, lexemes should be expected to have different variants which could be termed their ALLOLEXES. Although both Lyons and Matthews seem to avoid this particular term,[3] it seems clear from their discussion, as well as Crystal's, that different inflectional forms of verbs (*speak*,

speaks, *spoke*, *spoken*, *speaking*), nouns (*stone*, *stones*) and other inflectable words would be put forward as the variants or allolexes of the lexemes. It is argued in this paper that the comparison implied with allophones and allomorphs is far from perfect, and involves, in fact, such great differences that the two matters should be considered quite separate phenomena.

1. Allolexes and Other Allo-units.

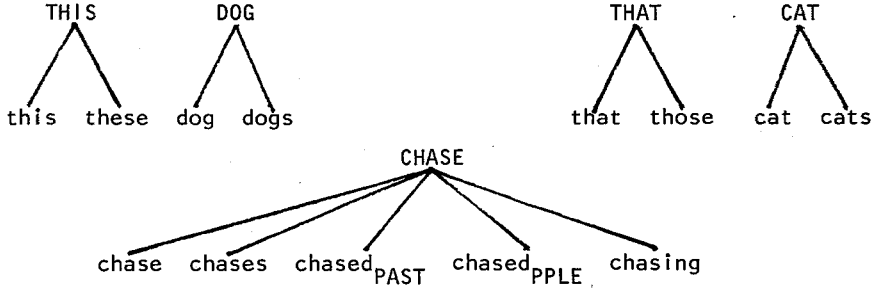
To see the problem with this usage of the term 'lexeme', let us consider the analysis of the simple English sentence *This dog chased that cat*. As it happens, each word in this sentence is subject to the kind of inflectional variation subsumed by the traditional kinds of lexemes under discussion. When we are dealing with more established emic units like phonemes and morphemes, it is always possible to represent utterances or parts of them in an emic transcription which abstracts out the variation and presents the whole utterance or fragment using symbols conventionally assigned to the emic units alone. If such a retranscription is based on a proper analysis, furthermore, it is always possible to construct for each utterance so retranscribed either a unique retranscription in terms of allo-units, or else a set of alternative retranscriptions which are free variants. This would be accomplished by consulting statements about the realizational relations between emic units and allo-units, which would have to be included in a linguistic description of whatever formal variety.

Let us see what happens when we try this with 'lexemes' in the Lyons-Matthews tradition in connection with our sample sentence. The appropriate 'lexemic' retranscription--abstracting out inflectional variants--would presumably be as follows:

^{L}/THIS DOG CHASE THAT CAT/.

Here the label for each 'lexeme' is given in capital letters, and these labels would subsume the variants summarized in Figure 1.

FIGURE 1. SOME SUPPOSED CASES OF ALLOLEXY.



When we consider variants of this sort, it should be immediately obvious that the putative parallelism between the relation of these 'lexemes' and 'allolexes' to the -eme/allo- relation seen in phonemes and morphemes is indeed illusory. There is no real com-

parison, because the 'coallolexes' associated with a particular 'lexeme' are essentially contrastive, and so cannot be in any kind of non-contrastive distribution. Given such contrasts, the supposed lexemic transcription given would be abstractable not just from our initial example, but from any of the eight contrastive examples listed in Table I. These examples are obviously not free variants, as the alleged parallelism to phonemic and morphemic units would seem to imply. All of this means, then, that the comparison involved in the establishment of the 'lexeme' in this sense is completely spurious. However useful the traditional idea of lexical item vs. inflected word-forms may be for linguists, the use of the terms LEXEME and ALLOLEX for such units is not proper, because these units have relations that are very different, the supposed allo-units being contrastive rather than non-contrastive.

TABLE I. DISTINCT SENTENCES SUBSUMED BY ^{L}/THIS DOG CHASE THAT CAT/

a. *This dog chases that cat.*

b. *This dog chased that cat*

c. *These dogs chase that cat.*

d. *These dogs chased that cat.*

e. *This dog chases those cats.*

f. *This dog chased those cats.*

g. *These dogs chase those cats.*

h. *These dogs chased those cats.*

2. Genuine Allolexy.

At the same time, the terms LEXEME and ALLOLEX should still have a useful place in contemporary linguistics, and they can in fact be used in such a fashion as to be compatible with the meanings of the affixes *-eme* and *allo-* in their more established usages. To allow this, however, it is obviously necessary to abandon the Lyons-Matthews tradition and turn instead to a different conception. Although there are in fact several contrasting uses of the term 'lexeme'[4], the alternative considered here arises from the work of Sydney M. Lamb in the stratificational tradition. In Lamb 1966:29 we find the lexeme characterized as 'the unit whose combinations are defined by the syntax'. Elsewhere in that book and Lamb's other writings, we learn that this conception includes both simple lexemes like ^{L}/dog/ CANINE ANIMAL, which relate to just one elementary unit (termed a LEXON), and complex lexemes like ^{L}/under stand/ COMPREHEND and ^{L}/hot dog/ FRANKFURTER SAUSAGE, which are unitary with respect to their connections to meaning, but relate to a combination of two or more lexons. As reflected in the definition already quoted from Crystal, the Lyons-Matthews tradition recognizes this distinction, so there is no conflict on this particular point.

The difference already discussed between these two traditions

comes forward, however, when we consider the further classification of lexemes regarding inflectional properties. The Lyons-Matthews tradition, as we have seen, treats inflectional differences as variants, as matters of allolexy. In the Lambian tradition[5], on the other hand, there would be a further dichotomy between INFLECTIONAL and NON-INFLECTIONAL lexemes, so that a word like *woodpeckers* would be analysed as containing the complex non-inflectional lexeme ^{L}/woodpecker/ and the simple inflectional lexeme ^{L}/s/, the plural marker. Table II summarizes the two dimensions just discussed and provides examples, the relevant parts of which are underlined. It clearly indicates that both inflectional and non-inflectional lexemes may be either simple or complex.

TABLE II. A BIDIMENSIONAL CLASSIFICATION OF LEXEMES.

	INFLECTIONAL	*NON-INFLECTIONAL*
SIMPLE	*speak<u>ing</u>*	*<u>dog</u>*
COMPLEX	*s<u>old</u>*	*<u>hot-dog</u>*

Though relatively little discussion of allolexes has appeared in the stratificational literature, there are in fact many such examples, though doubtless fewer statistically than for cases of allophony or allomorphy. Let us first consider the relationship between the morpheme and allomorph commonly found in Neo-Bloomfieldian models of language. For the purpose of relating this distinction to the stratificational model, we must first distinguish those alternations that are conditioned in terms of phonological units and those whose conditioning is best expressed in terms of particular grammatical units or classes of these. Alternations of the former kind form the domain of what many linguists have called MORPHOPHONEMIC ALTERNATION. Within various versions of the stratificational model, such alternations are treated in the phonological system. The remaining alternations can be collectively termed GRAMMATICAL ALTERNATIONS, but according to the version of the Lambian model followed here, they are subject to a further subdivision. If a grammatical alternation is conditioned by some other unit within the same grammatical word, it is a case of MORPHEMIC ALTERNATION or ALLOMORPHY, and is handled in the MORPHEMIC STRATAL SYSTEM. A simple example is seen in the English word *oxen*, where the root *ox* conditions the special allomorph *-en* of the plural morpheme. Any other grammatically-conditioned alternations, those conditioned from other words in larger structures such as phrases, clauses, and sentences, would be cases of LEXEMIC ALTERNATION or ALLOLEXY. This classification, which is linked to the notion that the morphology deals with language one grammatical word at a time, and therefore could not readily consider conditions based on adjacent words, is summarized in Table III.

One of the most frequent occurrences of allolexy is found in

TABLE III. SUBTYPES OF TRADITIONAL ALLOMORPHY ACCORDING TO THEIR CONDITIONING

	By Grammatical Units	*By Phonological Units*
Intraword	*MORPHEMIC* (=ALLOMORPHY)	*MORPHOPHONEMIC* (in Phonology)
Interword	*LEXEMIC* (=ALLOLEXY)	

many cases of grammatical concord. To begin with a well-known example, present indicative verbs in English show the dictinction between singular forms like *sees*, *likes*, and *gives* and the unaffixed plural forms *see*, *like*, and *give*. In order to select between the allolexes /z/ and zero of the Present Indicative lexeme, one must consider the grammatical structures occurring in the subject position of the clause. In order for the allolex /z/ to occur, this subject expression must be singular, involving, for instance, such a pronoun as *he*, *she*, or *it*, a singular noun phrase, whether common or proper (e.g. *the good little boy*, *poor John from Topeka*) or a disjunctive coordinate phrase involving singular nominals only (e.g. *he or she*, *either Bill or his mother*). If there are either plural nouns or pronouns, or any conjunctive coordinate expressions present, the total subject expression must be treated as plural for the purpose of lexemic conditioning, and the zero allolex characteristic of the plural will be chosen.

Many other kinds of concord also involve allolexy. An example of a somewhat different kind is seen in the requirements for classifiers found in many of the languages of East and Southeast Asia. These classifiers occur when any of various quantifiers (and sometimes also demonstratives, the details differing from language to language), is involved as an adjunct in a noun phrase. These classifier words usually convey some very general linguistic meaning, such as 'unit' or 'item', and the selection of which one to use in the general syntactic environment where one is required is dependent on the classification of the noun which serves as the head of the phrase.[6] Table IV presents some data for classifiers in Indonesian. This material is sufficient to allow one to deduce that the first word in each example is the numeral, and the last one is the noun. The middle word, underlined in these citations, is one of the six classifiers, given as just a sample of the many which occur in the language. Such an item is required by the fact that there is a quantifier present, and would not be used if the noun occurred without such a quantifier as its adjunct. These different words in the classifier function[7] are to be treated as the allolexes of a single general unit-classifying lexeme, conditioned by the class of the noun heading the phrase.[8]

A different kind of example involves the expression of nega-

TABLE IV. DATA FOR CLASSIFIERS IN INDONESIAN (Based on Kwee 1976)

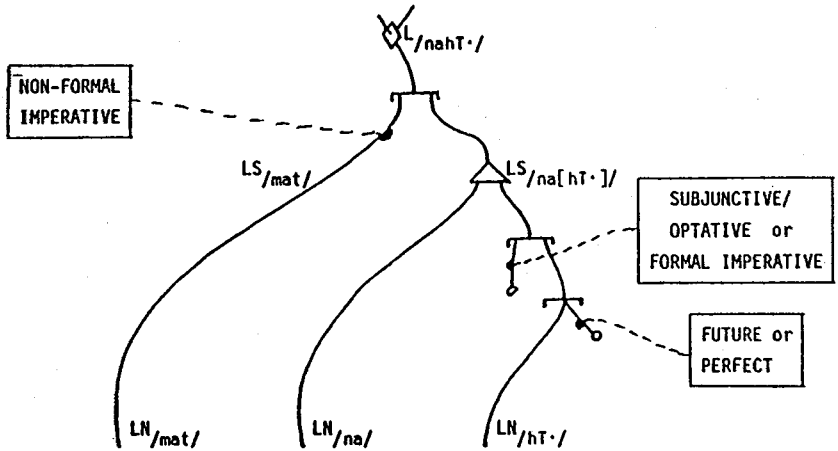
1.	dua bilah pisau	TWO KNIVES
2.	sepuluh bilah kapak	TEN AXES
3.	lima bidaŋ sawuh	FIVE FIELDS
4.	tiga bidaŋ tanah	THREE GROUNDS
5.	tiga ékor kera	THREE MONKEYS
6.	empat ékor beruaŋ	FOUR BEARS
7.	delapan buah sekolah	EIGHT SCHOOLS
8.	dua buah parhoto	TWO TRUCKS
9.	empat oraŋ babu	FOUR MAID-SERVANTS
10.	delapan oraŋ pelaut	EIGHT SAILORS
11.	sepuluh pucuk bedil	TEN RIFLES
12.	lima pucuk surat	FIVE LETTERS

tion in Hindi, the relevant data for which is given in Table V. It will be observed that the shape of the negator in this language depends on the tense/aspect/mood of the verbal expression which follows it: in the future and perfect, it is either /na/ or /nahT̃·/ in free variation[9], and otherwise it is either one of these or else a third variant /mat/. A formalized stratificational treatment of this allolexy is presented in Figure 2. There the boxed conditions stand for particular classes of verbal constructions, whose details would be built into the lexotactics of the language. So the non-formal imperative, a class subsuming the informal and semi-formal types at the bottom of Table V, is shown to require the allolex /mat/. In the absence of this condition, negation is expressed by /na/, which may or may not be followed by /hT̃·/, depending on the further conditions shown. The occurrence of /hT̃·/ is shown to be blocked when one is dealing with the formal imperative or the subjunctive/optative. For the future or perfect, the occurrence of this additional lexon is optional, in

TABLE V. DATA FOR NEGATION IN HINDI (Based on McGregor 1977)

1.	calta· hɛ	(HE) GOES	*PRESENT*
1'.	nahT̃· calta· [hɛ][10]	(HE) DOES NOT GO	*IMPERFECT*
2.	calta· tʰa·	(HE) WENT	*PAST*
2'.	nahT̃· calta· tʰa·	(HE) DID NOT GO	*IMPERFECT*
3.	cale	(HE) MIGHT GO	*SUBJUNCTIVE/*
3'.	na cale	(HE) MIGHT NOT GO	*OPTATIVE*
4.	calle	GO!	*FORMAL*
4'.	na calle	DO NOT GO!	*IMPERATIVE*
5.	cala·	(HE) WENT	
5'.	na cala·	(HE) DID NOT GO	*PERFECT*
5''.	nahT̃· cala·	(HE) DID NOT GO	
6.	calega·	(HE) WILL GO	
6'.	na calega·	(HE) WILL NOT GO	*FUTURE*
6''.	nahT̃· calega·	(HE) WILL NOT GO	
7.	cal	GO!	*INFORMAL*
7'.	mat cal	DO NOT GO!	*IMPERATIVE*
8.	calo	GO!	*SEMI-FORMAL*
8'.	mat calo	DO NOT GO!	*IMPERATIVE*

FIGURE 2. REALIZATION OF THE NEGATIVE LEXEME IN HINDI.



free variation, in that the zero option is enabled, but not required. Otherwise, for the imperfect forms, the occurrence of this lexon is obligatory, since neither the optional nor the obligatory blocking would be enabled in such a case.

3, Conclusion.

Of the two contrasting views of the lexeme/allolex relationship considered here, the traditional one found in Lyons, Matthews, and elsewhere has been shown to be untenable. Its supposed lexemes bear a quite different relation to their supposed variants, the inflected forms, than what is found for other, better established linguistic units. The Lambian view, on the other hand, presents a conception of the lexeme in which allolexes are environmentally predictable (or free) variants in non-contrastive distribution, like allophones and allomorphs. The latter view is the only one of the two, then, which gives a lexeme that can fit into the same overall model with phonemes and morphemes. It is unfortunate, though perhaps understandable, that such a ready reference as Crystal gives only the untenable view, doubtless based on the amount of attention this view has received.

The conclusions of this paper should not be taken to mean, of course, that the type of abstraction involved in traditional lexicography has to be abandoned. Practice has shown that this sort of abstraction is indeed useful for the lexicographer. The utility of such a notion in that particular area of applied linguistics does not, however, mean that it must have a place in theoretical linguistics. There is a good deal to be said, in fact, for the view presented in Gleason 1968:274, which expresses a doubt 'that a dictionary in anything like the familiar form can be given a reasonable theoretic base'. Such a view makes sense, even though it is in fundamental disagreement with almost every Chomskyan and post-Chomskyan view expressed over the past twenty-five years, ac-

cording to which the existence of a fundamental distinction between grammar and lexicon is one of the few points of general agreement.

In lexicography, as in any applied task, one must bridge the gap between theory and practical needs, and there is no reason to suggest that the traditional notion LEXICAL ITEM should be abandoned in this field. This paper has only attempted to demonstrate the inappropriateness of using the term 'lexeme' for this concept in the fashion suggested by Lyons and Matthews. A shorter, handier term than 'lexical item' may be desirable, but is is not appropriate to use 'lexeme' in this misleading way.

NOTES

[1]Special typography intended to provide cross-reference to other dictionary entries has been omitted in this quotation.

[2]Whorf's few examples do not make it really clear whether or not his view coincided precisely with those later articulated by Lyons and Matthews.

[3]Allerton (1979:215), however, explicitly suggests that 'variants of the same lexeme...might even...[be] call[ed]..."allolexes"'.

[4]Additional usages known to the present author are found in Hockett (1958:170-71) and Martinet (1960:25).

[5]There is one apparent exception in Lamb 1969, where the term 'lexeme' is suggested for a 'lexical word', and forms like *table* and *tables* are cited as 'two forms of the same lexical word' (41). This article, it should be pointed out, was a fairly short non-technical survey based on a talk originally prepared for broadcast over the Voice of America. This may account for its failure to follow what is here termed the 'Lambian' view.

[6]Like virtually all gender classifications, this subdivision involves both semological and purely grammatical factors. See Lockwood 1988 for further discussion.

[7]Many of the 'same' words used as classifiers may also occur as independent nouns with more specific meanings, e.g. *ékor* TAIL, *oraŋ* PERSON.

[8]In some grammars (e.g. of Chinese, cf. Norman 1988:115-17) classifiers are called 'measures'. This term reflects the fact that in some cases one could use different items referring to a particular quantity in a contrastive way (cf. such English expression as *a teaspoon/tablespoon/cup/pint/quart/gallon of milk*).

[9]The use of this term is not intended to preclude the strong probability that more complete research would reveal a stylistically-conditioned alternation here, rather than a truly free one.

[10]The auxiliary /hɛ/ is shown in brackets here because it is usually omitted in the negative 'unless the negation is strongly stressed' (McGregor 1977:18). This means that /nahĩ· calta·/ is the ordinary negative, while /nahĩ· calta· hɛ/ is a contrasting emphatic negative. Formalization of this aspect of the data would involve an emphatic element to overrule the otherwise normal omission of the auxiliary in the negative form.

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METONYMY AND PARTICIPANT NOMINALIZATION

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0. Introduction

Participant nominalizations (henceforth PNZs) are derived items such as the English *runner* or *employee*; deverbal nominalizations which denote a participant in the process denoted by the verb stem from which the nominalization is derived. Formations of this type have also been termed argument nominalizations by Comrie and Thompson (1985); the term 'participant' is being used in place of 'argument' for reasons which will be discussed at a later point.

The primary question with which this paper is concerned is that of what mechanism, or mechanisms, may account for the meaning of PNZs. One answer, of course, is that there is an association between each type of process and the participants which may be included in it, and it is upon this association that PNZs are based, i.e., that PNZ formation is a simple displacement phenomenon whereby a sign for referent **A** is conscripted as a sign for referent **B** due to an association between **A** and **B**.

While few would disagree with the utility of this argument, many would claim it is too general. What type of association, for example, is utilized? To provide a factual basis for discussion, I will first provide a number of examples of PNZ types from natural languages which will illustrate the basic problem in dealing with these derivations, which is nothing more than the usual difficulty with 'lexical' phenomena: there are clear patterned trends but many exceptions. I will then examine a number of possible explanations for the linkage between PNZ-reference and verb-reference.

1. Types of PNZ

1.1 Canonical PNZs

Perhaps the most familiar type of PNZ is one which is considered to refer to a participant bearing a standard semantic role relation to the process denoted by the verb stem, e.g. Agentive PNZs, Patientive PNZs, etc. In English, for example, the Agentive PNZ with *-er* is the most prominent type, being fully productive:[1]

```
1.a   (to) drive
  b   driver
```

In this case English is like many other languages; Agentives are statistically the most common PNZ type (Spruiell 1990).

```
2.a  yoola-l
     'speaker'
      speak-agentive nominalizer
      (Mam (Mayan); England (1983.118))

   b  λa-mati-ni
      NonspecificObject-know(Imperf)-Cust. Pres.
      'wise man' [lit. 'He is in the habit of
       knowing things']
      (Classical Nahuatl (Uto-Aztecan); Andrews
       1975.223)

   c  malit-si
      follow-agentive nominalizer
      'follower'
      (West Greenlandic Eskimo; Fortescue
       1984.319)
```

In addition to Agentives, there are a number of other PNZ types which correspond more or less clearly to participant (semantic) role categories, e.g. (cf. also Comrie and Thompson 1985):[2]

Patientives

```
3.a sęlok-ęl
    wash-EL
    'laundry'
    (Palauan (NW Austro.); Josephs 1975.180-181)

  b ɛ́kìdòŋ̀ò lò
    'this is the one who deserves to be castrated'
    (Karimojong (E. Nilotic); Novelli 1985.52)
```

Factives

```
4.a  ul-lęmách-ęl
      nom.-chew-EL
      'what is left over from chewing'
      (Palauan; Josephs 1975.174)

  b  tlapāhuaztli
     λa-pa:was-λi
     NonspecificObject-cook(Perfective)-S-Abs
     'a thing which is cooked in a pot; i.e. a
     stew'
     (Classical Nahuatl (Uto-Aztecan); Andrews
      1975.240)
```

Instrumentals

```
5.a  tutz'-b'il
     sit-instrumental nominalizer
     'bench or chair'
     (Mam (Mayan); England 1983.118)

  b  ilin-niut-it
     teach-means.to
     'teaching materials'
     (West Greenlandic Eskimo; Fortescue 1984.319)
```

Locatives

```
6.a  cuhca-cami
      stand-present locative nominalizer
      'place where X is standing'
      (Nevome (Uto-Aztecan); Shaul 1986.46).

  b  Bikiro
     0-Bik=ir-o
     Class5-cook=applicative-inanimate nominalizer
     'cooking place'
     (Shona (Bantu); Fortune 1955.62)
```

The Patientive examples in (3a-b) involve forms not traditionally labelled as PNZs but functioning as participant nominalizations. The Palauan form in (3a), termed by Josephs (1975) as an 'anticipatory state verb' can function nominally or verbally, but in nominal function is a Patientive. The Karimojong example in (3b) is termed by Novelli a participle, but can function unrestrictedly as a noun; i.e. it does not require a head noun. Forms such as this occur in a number of languages and, though usually called participles, may also be considered PNZs. This is especially the case if the language in question does not formally distinguish between an adjective and noun class.

1.2 Deviant PNZs

The PNZ examples presented in (1)-(6), above, may give the impression that all PNZs fall nicely into widely-recognized semantic roles. This is, however, far from the case. There are a number of ways in which the simplicity of the association between PNZ type and role may be seen to be illusionary.

1.2.1 Role Conflation

Frequently, a PNZ type in a given language may refer to participants based on more than one semantic role. A quite convenient example exists in the form of the English 'Agentive' nominalizer:

```
7.a runner
  b screwdriver
```

The English 'Agentive' is actually an Agentive/Instrumental nominalization, using the same form for both. Other languages, such as Mam, distinguish between the two; compare (2a) and (5a), above. In any account of process-participant relations in PNZs, then, we must allow for the possibility of conflating two roles in one PNZ. Conflation of this sort is quite common; some conflations, such as Agent/Instrumental, are quite common, while others, such as Agent/Factive, are rare (cf. Spruiell 1990). Role-conflation can even extend beyond the combination of two roles. This is common with 'old' PNZ forms, for example, since the meanings of individual nominalizations, once formed, may undergo semantic drift. We may wish to exclude examples of this type on the grounds that they do not provide information about the synchronic status of nominalizers. One occasionally finds fully productive PNZ formatives, however, which combine multiple roles (e.g., the English *-er*). The logical extreme of this type is one in which there is one PNZ type for any participant in a process, regardless of which role that participant serves in. Ladakhi, a Tibeto-Burman language of India, has borrowed the *-pę* nominalizer from Tibetan and appears to use it in this fashion (Koshal 1979.50-51).

1.2.2. Hyperspecificity

Another type of problem with the 'one role, one PNZ' view is constituted by the existence of PNZ types which, while referring to a participant in one general semantic role, are much more specific; e.g. :

```
8.a  ani-qqaaq
     come.out-one.who.has.just
     'one who has just come out'

  b  aangu-gajuuq
     seal-one.who.often
     'one who often catches seals'
     (West Greenlandic Eskimo; Fortescue 1984.319)

9.a bumili-:-ŋiñ
     fight-nominalizer-Agentive1
     'fighter' [i.e a person who habitually fights
     WCS]

   b bumili-:-ŋurgan
     fight-nominalizer-Agentive2
     'person who has had a fight'
     (Waalubal (Australian); Crowley 1978.36-37)
```

Examples (8) and (9) cannot be simply considered Agentives, since they carry additional information as well. In (8a-b) the additional information involves what Sapir (1921.101, 139) might term 'mixed relational' marking; i.e. categories normally marked lexically, rather than grammatically. In (9a-b) the difference is aspectual. It

is not at all unusual to find aspectual distinctions in Agentives in languages which have morphological marking of aspect on a verb stem under the scope of nominalization; the examples in (9) are unusual in that the aspectual distinction is not marked via the normal 'verbal' aspect-markers in Waalubal.

Whereas role conflation gives rise to a 'many roles, one PNZ type' situation, hyperspecificity results in a 'one role, many PNZ types' situation. The combination of the two can be considered grounds upon which to make a full disjunction between PNZs and semantic roles. This would be a mistake, however. Note that it is one thing to argue that in a particular case (i.e. one PNZ type or one language) there is no one-to-one correspondence between role and PNZ type, but it is another thing entirely to claim that 'language works that way'. The existence of disjunction is of great importance, but it does not automatically constitute sufficient evidence upon which to base a universalist claim.

1.2.3 Nonstandard Participant Roles

Another type of variation involves PNZs which, rather than being more specific or more general than traditional semantic roles, correspond to participant types not usually included in those roles, e.g.:

```
10.a illa-rpaluk
      laugh-sound.of
      'sound of laughter'
      (West Greenlandic Eskimo; Fortescue 1984.319)

11.a nuoki-daga
      speak-nominalizer
      'speaker'

   b si-nuoki-daga
      stative-speak-nominalizer
      'chatterbox'

   c si-bacohi-daga
      stative-get angry (pl)-nominalizer
      'ones easily angered'
      (Nevome (Uto-Aztecan); Shaul 1986.43)
```

While the sound produced by an action can easily be considered an integral part of an event involving that action, as in (10), most analysts do not include Aurative in their semantic role inventories. Example (11) illustrates what I will term Exemplar PNZs. While the form in (11a) with only the *-daga* nominalizer is an Agentive, the forms in (11b) and (11c), stativized with *si-*, refer not to Agents or Patients but rather to simply a good example of either.

1.3 General Remarks

In the preceding paragraphs I have attempted to counter the notion that PNZs always correspond transparently to single semantic roles. The fact should not be ignored, however, that on many occasions the simplistic view of PNZs does, in fact, work. In many languages, for example, the same devices used to signal the semantic roles of arguments in main-clause syntax may be used for the same function in PNZs, and in these cases there is frequently a great deal of isomorphism. Voice-marking is a case in point. In languages in which (a) voice is morphologically marked, and (b) the scope of nominalization includes complex verb stems, it is not uncommon to find voice markers operating to distinguish Agentives and Patientives, e.g. (Shona (Bantu); Fortune 1955.62)

```
12.a mu-Bat-i
     Class1-hold-animate nominalizer
     'governor'

   b mu-Bat=w-i
     Class1-hold=passive-animate nominalizer
     'captive'
```

While exceptions do exist (cf. Thyme's 1989 analysis of nominalization in Malagasy), there is, in general, a rather direct relation between unitary semantic roles and nominalization types in voice-differentiated PNZs.

In addition, many languages which do not conscript main-clause marking devices as PNZ differentiators nevertheless utilize PNZ types with one-to-one correspondences with familiar semantic roles, as was the case with the Mam Agentive and Instrumental PNZs in examples (5a) and (2a), above. If we consider only correspondence with semantic roles, rather than whether the correspondence is one-to-one or not, it becomes apparent that the vast majority of PNZs do, in fact, involve familiar roles.

We are thus left with a classic baby-and-bathwater situation: We should not ignore the fact that PNZs do not always correspond to single semantic roles, or to traditional semantic roles at all, but on the other hand we do not want to ignore the fact that so often they do. How to deal with this situation will be the topic of the following section.

2. Possible Explanations

As discussed in section 0, the basic issue involved in PNZ meaning is the type, or types, of associations between process and participant which may form the basis for reference. Discussion of process-participant relations (henceforth PPRs) in nominalizations has been carried out mainly in regard to action nominalizations, and primarily among linguists working within the framework of Transformational Grammar or one of its more modern offshoots. The questions which have been raised about such relations have been shaped largely by the theoretical paradigm within which they were asked. In general, arguments made about action nominalizations have been

extended to PNZs on the grounds that both phenomena involve basically the same type of mechanism. Because of this background, I will address some of the discussion in the following subsections to theoretical entities internal to the transformationalist paradigm, although these may in all cases be related to more 'generic' phenomena.

2.1 Syntagmatic Associations in the Lexicon (Subcategorization Restrictions)

In early transformationalist treatments such as Lees (1960), PPRs in action nominalizations were thought to be inherited; i.e. action nominalizations were considered transforms of main clauses and hence 'inherited' structure from them. For this reason, the term *inheritance* came to be used to describe phenomena in which nominalizations appeared to manifest or utilize the same relations between processes and participants as are found in main clauses (e.g. *John's refusal of the invitation*). Chomsky (1970) argued against the view that derived nominals were transforms, claiming instead that they were of lexical origin. This meant that some mechanism in the lexicon had to be able to account for inheritance. The mechanism chosen was that of subcategorization restrictions, which in essence are a representation of the syntagmatic associations between lexical items and other lexical items or syntactic categories. At the time, the only type of semantic information present in the transformationalist view of the lexicon was in the form of selectional restrictions, which specified categories like <+/- *animate*> but not semantic roles such as *Agent*.

Problems with this analysis soon arose. For example, Chomsky (1970) had argued for a lexical explanation for inheritance partly on the grounds that the choice of prepositions used with a deverbal noun was at times different from that possible with the original verb (a situation which should not result if action nominalizations were transforms). By the same token, however, the verb's subcategorization restrictions were different from that of the deverbal noun. This problem could be handled simply by positing a lexicon in which lexical items could have tree structures, with nominal and verbal forms each having their own subcategorization frames, but this solution ignored the fact that inheritance involved some commonality, even if it was not strictly grammatical. If the subcategorization frames could be different, how could inheritance be anything other than random? In relation to PNZs, it is apparent that a purely structural explanation would allow for 'Subject' PNZs and 'Object' PNZs, but not split forms like those in (13):

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13.a trainee
   b attendee
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While (13a) could be claimed to involve an Object PNZ (cmp. *I trained him*), the same argument causes problems if applied to (13b), since an *attendee* is a person who attends something, not a person who is attended.

The situation was resolved after the development of a mechanism within transformational grammar for representing the semantic roles which had long been discussed by Fillmore (1968) and others. This mechanism took the form of thematic grids which are lexical specifications which match up a verb's possible syntactic arguments with thematic roles (thematic roles being a restricted version of semantic

roles; this point is discussed in more detail below). Hoekstra (1986) argued that inheritance in general should be accounted for on the basis of thematic grids rather than subcategorization restrictions. Carrier-Duncan (1985) and Randall (1984; cited in Booij 1986) applied similar arguments to PNZs (specifically the *-ee* nominalizer in English). In (14), above, for example, it can be argued that a role such as Theme (or Experiencer) may serve as the Object of transitive verbs and the Subject of a subset of intransitive verbs; it is thus not surprising that Theme nominalizations should appear for Subject-realized participants. The pure 'syntagmatic association' explanation has thus been largely abandoned, and the same arguments which were valid within the transformationalist paradigm are valid in many cases within a functionalist one; e.g., many PNZs appear to be more sensitive to the relation between a participant and a process than to the relation between the syntactic position that participant is realized in and the position of the verb.

We cannot, however, completely rule out syntagmatic factors as potential explanations for PNZ-reference. Booij (1986.307) has noted that the *-er* PNZ formative in Dutch (and English) is in a sense an inverse of *-ee*, in that the former corresponds to a number of roles which can appear in one syntactic position, while the latter corresponds to one role which can appear in a number of syntactic positions. The *-er* formative in Dutch primarily corresponds to roles which can appear associated with arguments in subject position; the exact role depending upon verb class (e.g., some verbs take Agent subjects, others Theme subjects). While this type of phenomenon inherently involves the recognition of PPRs, it also requires us to recognize syntactic considerations as being a factor. Whatever analysis is adopted must recognize both PPRs and syntagmatic associations in some way as being involved in PNZ-reference.

2.2 Thematic Grids

The shift in explanation from subcategorization restrictions to thematic role specifications as discussed in the previous section allows for PNZs to be based on PPRs in addition to syntactic configurations, and as such produces an account more in keeping with the observed characteristics of PNZs. There are, however, difficulties with the thematic role (henceforth, following common practice, θ-role) explanation as well. Most importantly, it has difficulties dealing with many-to-one and one-to-many relations between PNZ type and role as discussed in 1.2.1 and 1.2.2. An Agentive PNZ based purely on θ-role specifications should always and only be an Agentive, not an Agentive/Instrumental. Conflation problems can, however, be handled if the many-to-one relation appears to be related to the association of roles with a single syntactic position, as discussed above, although this requires interaction of role and syntactic information and hence does not qualify as 'purely' thematic.

Hyperspecificity, on the other hand, is a different problem entirely. Habitual-Agentive vs. Perfective-Agentive distinctions (cf. 1.2.2), for example, cannot be dealt with via θ-roles unless the number of roles is multiplied, perhaps arbitrarily, to deal with isolated examples of this type. Furthermore, the derivation of habitual- vs. perfective-agentives cannot, in many cases, be predicted on the basis of lexical semantics, being possible with verb stems which do not imply either perfectivity or

imperfectivity. Since the distinction does not appear to be lexically based, it would not be represented via specifications in lexical entries, and as discussed below most conceptions of θ-roles involve lexical specifications.

Booij (1986), in an analysis of the 'Agentive' in Dutch, noted the problem of role-conflation, and proposed a shift from θ-roles to more general semantic categories as a way of dealing with it. The Dutch Agentive actually corresponds to a number of roles, most prominently Agentive and Instrumental. Booij (ibid.) argued that, rather than representing some arbitrary collage of roles, the relations which the Dutch Agentive corresponded to were in fact organized in a prototype-based category whose members were related to the prototype (in this case Personal Agent) by semantic extension rules. Since the associations between the roles within the category were at a higher level of abstraction than θ-roles, Booij (1986.512) termed them 'conceptual', rather than 'linguistic'.[3] Since the existence of PNZ role-conflation phenomena is amply demonstrated in a number of languages other than Dutch, Booij's arguments can be taken as applying to PNZ-reference in general; that is, any account must allow for phenomena of this type, although it does not necessarily have to assume the existence of it in each particular example.

An additional difficulty with the θ-role explanation results from the nature of θ-roles themselves and their use within certain theories in the transformationalist paradigm. They are intended as specifications of arguments at a logical level of representation which, in GB, is derived from the surface structure of sentences, and which is a variant of propositional logic. This logical representation level is, in short, interpretive; it analyzes 'exported' information from syntax rather than driving syntax itself (cf. Chomsky 1981).[4] Due to the essentially one-way nature of the information flow, specifications for θ-role must be passed to the logical level of representation and dealt with there. The mechanism for this transfer is provided by thematic grids (henceforth θ-grids), which are lexical specifications of which roles are available to be assigned to arguments. Each argument in a logical representation must be assigned one and only one θ-role, with a few exceptions. The lexical entry for a verb, for example, must in part be comprised of a θ-grid specifying roles to be associated with the verbs arguments, and likewise for the entries of prepositions.

The problem which emerges with this system in its application to θ-roles involves optional arguments introduced by prepositional phrases. Thematic roles assigned to such arguments are usually not considered as specified by the verb; otherwise, one would have to specify each verb for the entire range of potential roles assigned to prepositional phrases accompanying it.[5] Rather, the role-assignments are supplied by the preposition serving as head of the phrase. Optional arguments of this type frequently include Instrumentals and Locatives, since few verbs actually require the presence of Instrumental or Locative arguments. If it were the case that a verb's θ-grid were the basis for PNZ-reference, one would not expect, then, to find Instrumental or Locative PNZ types based on verb stems other than those which require arguments with those roles (verbs of translocation, for example). However, Instrumental and Locative PNZs are far from rare, and quite often based on verbs not requiring arguments with such roles.

One way out of the dilemma involves allowing for bidirectional interaction between the lexicon and the semantics, or eliminating the strong distinction between the two entirely. Carrier-Duncan (1985) adopted the first type of tactic. She distinguished between inherent roles, which are specified in lexical entries and which must correspond to obligatory arguments, and noninherent roles which are specified in the semantic 'Predicate Argument Structure' of verbs; either specification could be used as a basis for PNZ-reference. Jackendoff (1987) allowed for the second type of modification, arguing that the lexicon was actually a distributed system of correspondence rules. Either of these theories can account for PNZ types such as Instrumentals and Locatives, but both have the same problem with Hyperspecific and Nonstandard PNZs as does the GB incarnation of θ-roles. It should be noted that allowance for semantic specifications of roles actually causes a definitional shift in terms of the system I am using, in that it renders the variant θ-roles more similar to what I term semantic roles.

2.3 Semantic Roles and Salient Categories: Back to Metonymy

A shift from thematic to semantic roles is not sufficient to solve all the remaining problems, however. The existence of one-to-many PNZ phenomena (1.2.2) and PNZ types not corresponding to traditional semantic roles (1.2.3) are still to be accounted for. As with θ-roles, semantic roles cannot be used to deal with one-to-many relations unless the number of recognized semantic roles is multiplied, perhaps enormously. Nonstandard role-based PNZs constitute a similar problem; if we were to attempt to develop an inventory of which PPRs were available upon which to base PNZ types in human language in general, we would never finish the task. Additionally, if we were to base our account wholly on semantic roles, we would be left unable to deal with cases in which syntagmatic associations play a part. One possible reaction to this problem is to throw out the notion of semantic role as the basis of PNZ reference completely, and argue that PNZs are simply based on any association whatsoever. As argued in 1.3, however, to accept this argument is to ignore very real statistical asymmetries in role-to-PNZ type relations.

I will, therefore, suggest a middle ground, based on a reanalysis of semantic roles. Rather than discrete entities, we can consider semantic roles as conceptual watersheds organizing relations of infinite variation and granularity. The number of potential PPRs is unbounded. However it can be argued that, as a result of the interaction of psychological and pragmatic considerations, certain categories will be favored for frequent utility, and hence salience, over others. For example, the notion 'Intentional cause of event' appears to be quite useful in human cognition in a number of frequently occurring situations, while 'object left outside to be affected by events' seems to be of less marked utility. The most common of these salient categories may, in each particular language, be institutionalized via a system of morphosyntactic signals, and hence be considered 'semantic roles' in that language, while others are signalled only via lexical items, or paraphrastically.

Semantic roles, in such an analysis, are in essence categories of categories. This analysis does not preclude the existence of other relations among their subordinate categories (e.g., 'cause of event' may be a member category of both

'Agent' and 'Instrument'). These additional relations would act as complex connections between semantic roles, enabling the type of family resemblance phenomena noted by Booij (ibid.) and others. Treating semantic role as any other type of categorization also allows for the possibility of categorial organization of the type developed by Rosch (1973), with base-level categories (semantic roles), subordinate categories (specific PPRs or less commonly used categories of them), and superordinate categories (e.g. Material Cause, made up of Agent and Instrument).

What are the consequences for PNZ-reference if we accept such a view? I will return to the initial account proposed, that is, that PNZ-formation is a displacement phenomenon involving the conscription of the sign for a process as a sign for a participant of that process, and that this displacement takes place along lines of association. Inasmuch as both the participants and process can be considered as parts of the event, I consider the displacement phenomenon to be a form of metonymy. In addition I propose that the inventory of available associations is not homogeneous, but rather that some are more salient than others; in short, there are lines of least resistance, corresponding to semantic roles in many cases. This watershed effect produces a statistical asymmetry, in that PNZ types involving common semantic roles will be much more common than those involving less salient PPR categories. However, it does not preclude the existence of PNZs based on less salient categories, and so we do, for example, have a West Greenlandic Eskimo PNZ type for 'something left behind to have something happen to it' (cf. Fortescue 1984.319). Nor does it preclude the existence of PNZs based on syntagmatic associations.

As a final point, it should be noted that in addition to the effect of differential salience of PPRs, PNZs may be affected by pragmatic factors arising from their use as names. Certain PPRs, while quite salient, may nevertheless not be of great utility in the formation of names. A case in point is Beneficiary; regardless of the number of instances in impromptu speech when we need to designate that someone is the beneficiary of an act, it is rarely possible to characterize that individual enduringly by virtue of the beneficiary relation. PNZs, like most names, need to be context-independent to a certain degree. A person who has murdered once can be characterized by a murderer because the consequences of committing such a crime continue to be relevant in a number of contexts. With rare exceptions (e.g. the Trojans), the status of being the recipient of a gift do not entail enduring consequences, and hence a label such as 'gift-getter' is not particularly useful.

3. Implications for Typology

The proposed analysis of PNZ-reference, that is, that it involves metonymic relations based on associations of different strengths, allows for an additional typology of PNZ types. As discussed above, certain PPRs may be encoded in the morphosyntax of a particular language (i.e., may be grammaticalized), while others may not. Languages differ in the extent to which the categories involved in PNZ-reference are isomorphic to those encoded in their morphosyntax. At one extreme, we have

languages in which the same devices used to signal main-clause categories or relations are used in PNZ formation (e.g., the use of voice-markers as PNZ type differentiators). At the other extreme are languages which use categories not regularly encoded in the morphosyntax as the basis for PNZ-reference (e.g. the Turkish administrative group nominalization). This is, of course, an overgeneralization; it is specific PNZ types, rather than languages, which are isomorphic to morphosyntactic categories or not. Nevertheless, languages can be characterized in terms of the proportion of their PNZs which are isomorphic. The relevant question, of course, is to what extent such a typological distinction is useful

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NOTES

1. I am considering the -er and -or suffixes as being functionally equivalent.

2. (A) Patientives and Factives are distinguished on the basis of whether the object/entity affected by the action of the process pre-exists the process itself. Factives come about as the result of the process, while Patientives pre-exist it.

   (B) A morphemic gloss is not given with the Karimojong example because Novelli does not provide morphemic glosses in his grammar and the morphophonemic complexity of the language precludes an amateur analysis.

   (C) The S symbol in the Classical Nahuatl example denotes a subtractive morpheme, realized by the deletion of a stem-final vowel.

3. "It is perhaps useful to stress the point that the categories...are conceptual categories, not linguistic categories. The linguistic category Agent can be found as a θ-role in the θ-grid of verbs: it is a grammaticalization of the conceptual category Agent in respect to verbs." (Booij 1986.512)

4. Interaction between syntax and logical representations in GB is basically unidirectional, and takes the form of a filter. If the representation derived from the surface structure does not fulfill the requirements of the filter, it is rejected. Semantics, in essence, can veto a sentence prior to production, but cannot interact with the production of it.

5. Baker (1988.236-245), arguing against Marantz (1984), has claimed that Instrumentals, Benefactives, and some Locatives are assigned θ-roles by the verb. However, his argument was presented in the context of analyzing applicative 'voice' verb constructions, and it is unclear whether he intended his arguments to be generalized to non-applicative verbal θ-grids. Moreover, his treatment of Locatives involved verbs of location or translocation; verbs not in these categories, such as *kill*, may form the basis of locative PNZs. Benefactives form an additional problem with this account, since, if they are assumed like Instrumentals to be marked via verbal θ-grids, one could expect to find a number of Benefactive PNZ types. However, I have found only one such example: In Navajo, adpositions may be incorporated into the verb stem, and nominalized verb stems with incorporated Benefactive adposition form Benefactive PNZs.

V

SEMANTICS

LET'S TALK TURKEY: ANIMAL METAPHORS IN FRENCH AND ENGLISH

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In the bilingual zoo of language, many cages are empty while others are filled with different animals. If an animal metaphor appears in the source language, one can expect a different animal expression or no animal at all in the equivalence reached in the target language.

Because of their abundance, frequency of usage and great variety of divergences in French and English, animal metaphors prove to be misleading lexico-cultural collocations. Even the truly bilingual will, at times, stumble on such beastly expressions.

As we were walking to our car one evening, after a night in Chicago, an American colleague of mine exclaimed: "*Il n'y a pas une âme dans la rue,*" a calque on the English idiom "*there isn't a soul in the street.*" He had translated a dead metaphor in English by a live metaphor in French, an obvious case of hypertranslation. The equivalent fossil metaphor in French, "*il n'y a pas un chat dans la rue,*" contains an animal word as one of its constituents. In the same vein, "*a pig in a poke*" becomes "*chat en poche*"; "*a bull in a china shop*" is rendered by "*un chien dans un jeu de quilles,*" and "*the birds of a feather...*" have flown away in the French "*qui se ressemblent, s'assemblent.*"

This paper will compare many animal metaphors in French and English. They will be studied on a purely synchronic basis. They will be contrasted for their phonological configuration as prosodemes(Vinay/Darbelnet, 1964.) Their morphological makeup will also reveal a high degree of divergences. At the lexemic level, differences will be discovered in the presence or absence of an animal lexeme in the expressions and in the variety of lexical realizations of the animal word in the other language. The sememic value of animal metaphors will show connotational and aspectual nuances. Consideration will also be given to animal metaphors used as technical terms.

1.0 ANIMAL METAPHORS AS PROSODEMES

In English and French, some animal metaphors owe their popularity and recognition to their phonological characteristics. Lexemic and sememic idioms (Makkai, 1972) containing animal lexemes are often constructed on phonemic similitude or dissimilitude of a vocalic or consonantal nature. Such idioms may be called prosodemes. For the

purpose of their retention, their phonological constituents may serve to underscore the factors that they have in common regardless of their totally different lexical equivalences.

Thus, the pseudo-idiom (Makkai, 1972) of English, "*tit for tat,*" formed on the vocalic dissimilation /i/>/ae/ may be rendered by French "*du tac au tac,*" built on an exact reduplicaiton of the vowel /a/. It can also find an equivalence in the sememic idiom "*à bon chat bon rat,*" in which the consonants of the animal words '*chat*' /ʃa/ and '*rat*' /Ʀa/ are used to perform the dissimilation role played by the /i/ and the /ae/ in "*tit for tat.*"

Rhyming is also an important factor which contributes to the viability and retention of animal metaphors in a monolingual or bilingual situation. "*Birds of a feather flock together*" is an example of a prosodeme built on a rhyme. Its French equivalent, also a sememic idiom, contains no animal lexeme. However, the rhyme remains in the equivalence "*qui se ressemblent, s'assemblent.*" In both expressions, the sememic correspondences are the same. Their lexical realizations do not coincide, except that the rhyming potentiality of the lexemes used gives them a common denominator. In the examples which follow, the underlined segments show alliteration, dissimilation, assonance and rhyme at work in both equivalences.

ENGLISH	FRENCH
to call a spade a spade	*appeler un chat un chat*
to have other fish to fry	*avoir d'autres chats à fouetter*
to have the gift of gab	*bavard comme une pie*
little strokes fell great oaks	*petit à petit l'oiseau fait son nid*
to throw out a sprat to catch a mackerel	*donner un oeuf pour avoir un boeuf*
a cat may look at a king	*un chien regarde bien un évêque*
to buy a pig in a poke	*acheter chat en poche*
to be a busy bee	*faire la mouche du coche*

2.0 ANIMAL METAPHORS USED AS MORPHEMIC IDIOMS IN FRENCH

Just as it often occurs in English, animal lexemes in French carry the sememe 'to give birth.' Thus, to calf is *vêler,* to lamb is *agneler,* to foal is *pouliner,* to cub is *louveter* and to pig is *cochonner.* However, many verbal derivatives of animal nouns have acquired figurative meanings in French. They have become morphemic idioms. The meaning of the verbal derivative, animal noun + suffix -er, goes beyond the sum total of its morphemic constituents. Thus, besides its meaning of 'giving birth to pigs,' *cochonner* also means 'to botch.' Examples:

Animal metaphor	Incorrect sememe	Correct sememe
moutonner	'to sheep'	'to froth'
serpenter	'to snake'	'to wind'
papillonner	'to butterfly'	'to flit about'

Animal Metaphor	Incorrect sememe	Correct sememe
se pavaner	'to peacock oneself'	'to strut about'
seriner	'to canary'	'to repeat often'
anonner	'to donkey'	'to blunder'
bourdonner	'to bumblebee'	'to buzz'
canarder	'to duck'	'to spread false rumors'
dindonner	'to turkey'	'to fool someone'
fourmiller	'to ant'	'to swarm'
lapiner	'to rabbit'	'to have one child after another'
oiseler	'to bird'	'to go bird watching'

2.1 ANIMAL METAPHORS AS LEXEMIC IDIOMS IN ENGLISH

The animal metaphors found at the lexemic level in English are realized very differently in French. Animal metaphors occur frequently as lexemic idioms in English where one finds all sorts of expressions of the type to animal + preposition, or to preposition + animal. French disallows such verbal phrases. A completely different realization will ensue in French at the lexemic level which will never include an animal lexeme. The sememe of the English lexemic idiom containing an animal lexeme will yield the French lexemic or polylexemic equivalent.

English Animal Metaphor	Sememe	French Lexemic Realization
to chicken out	'to quit'	*flancher*
to pig out	'to stuff oneself'	*se bourrer*
to clam up	'to shut up'	*se taire*
to lark around	'to joke'	*faire des farces*
to fish for	'to look for'	*chercher*
to horse around	'to act foolishly'	*faire des bêtises*
to monkey around	'to act stupidly'	*faire l'imbécile*
to wolf down	'to devour'	*dévorer*
to beef up	'to build up'	*gonfler*
to outfox	'to outsmart'	*dépasser en finesse*

3.0 ANIMAL METAPHORS AND THE NOTION OF ASPECT

In both French and English, animal metaphors and their equivalences are often imbued with the sememic aspect of superlativity or intensity. When used as adverbs, they become synonymous with 'very', 'extremely', or 'tremendously'. They can also realize the sememe 'great' or 'fantastic' when used as adjectives. The aspect of superlativity is also present in the institutionalized phrases of the type:

English:

adjective + as (a/the) <u>animal</u> <u>word</u>
verb + like a(n) <u>animal</u> <u>word</u>
verb + preposition the <u>animal</u> <u>word</u>

French: adjectif + comme un/une animal word
verbe + comme un/une animal word

These institutionalized phrases can all be paraphrased by very + an adjective. When no animal metaphors exist for these expressions in one of the languages, the aspect of superlativity is still present but lexicalized differently. The group of animal metaphors carrying the aspect of superlativity is very large in both languages.

French metaphor or equivalent	Aspect of Superlativity	English metaphor or equivalent
C'est boeuf!	'very good'	*It's great!*
se lever au chant du coq	'very early'	*to rise with the lark*
chanter comme un rossignol	'very well'	*to sing like a lark*
filer comme un zèbre	'very fast'	*to go like a bat out of hell*
on s'est vachement bien amusé	'a very good time'	*we had a whale of a good time*
une guenon	'a very ugly woman'	*a dog*
avoir un appétit d'oiseau	'very small'	*to eat like a bird*
une fièvre de cheval	'very high fever'	*a raging fever*
un mouton à 5 pattes	'very unusual person'	*a rare bird*
un merle blanc	'very unusual person, thing'	*a rare bird*

4.0 ANIMAL METAPHORS AND CONNOTATIONS

In French, more than in English, animal metaphors take special meanings in the form of connotations. Three frequent connotations attach themselves to animal metaphors in French: affective, pejorative and sexual. Because the presence of a connotational meaning in animal metaphors is idiomatic, i.e. the whole meaning equals more than the sum total of all of its parts, it merits special attention in the acquisition of lexico-cultural literacy in French. Many of the connotative animal metaphors of French are slang and must be spoken with care by the untutored non-native speaker.

4.1 AFFECTIVE CONNOTATION

In the area of animal metaphors, as in other dimensions of the lexicon, the French live up to their reputation as romantic beings. Indeed, in French, words from the vegetal world, mon chou, 'my cabbage', or from the animal world, mon petit chat, 'my little cat', are often used to show affection in the interpellation of a loved one. The connotational aspect of such animal metaphors has become ingrained in the French lexicon to the point of overriding

gender in certain cases. Thus, a man or woman may be addressed as mon petit chou or mon gros loup regardless of the sexual gender of the animal used. Here is an incomplete list of animal metaphors which apply to lovers of either gender.

Metaphor	Literal Translation	Affective Connotation (English Equivalence)
ma bichette	'my little hind'	*my darling*
ma petite caille	'my little quail'	*my darling*
mon petit canard	'my little duck'	*my darling*
mon petit chat	'my little cat'	*my love*
ma petite dinde	'my little turkey'	*my darling*
mon petit loup	'my little wolf'	*my darling*
mon gros loup	'my big wolf'	*my darling*
mon petit poulet	'my little chicken'	*my darling*
ma puce	'my flea'	*my love*
une petite souris	'a little mouse'	*a busy little old lady*
ma petite poule	'my little hen'	*my dear*

4.2 PEJORATIVE CONNOTATION

Many more animal metaphors carry a pejorative connotation in French than in English. To call someone a frog, a turkey, a cow, a pig, a dog or a chick in English is, of course, derogatory. However, the French have carried this tendency much further. More animal words are inherently marked with a pejorative connotation in French. They cannot be uttered, even innocently, by the untutored, when applied to a person, without being offensive.

Metaphor	Translation	Connotation
une bécasse	'a woodcock'	*a silly girl*
une vieille bique	'a nanny goat'	*an old bag*
une caille	'a quail'	*a chick*
un beau merle	'a blackbird'	*an unpleasant person*
un chameau	'a camel'	*a bastard*
la chameau	'the camel'	*the bitch*
un vieux chameau	'an old camel'	*the old so and so*
être chien	'to be dog'	*to be mean*
quel cochon!	'pig'	*what a bastard!*
un corbeau	'a crow'	*a priest*
une dinde	'a turkey'	*a stupid woman*
vieilles dindes	'old turkeys'	*old ladies*
une grenouille	'a frog'	*bigoted churchwoman*
grenouiller	'to frog'	*to bitch*
une guenon	'a she-monkey'	*an ugly woman*

4.3 SEXUAL CONNOTATION

In French, animal metaphors often function as a euphemistic code to talk about raw sexual matters, to avoid more crude words. A

lexical constituents or their lexotactic format. An equivalence must be found in the memory of the bilingual speaker or in dictionaries of such expressions.

There exist, however, many types of equivalences. This awareness may simplify the assimilation of animal metaphors in French and English. If total lexemic-sememic correspondence exists in the animal metaphors of French and English, we have the case of an exact equivalence or translation. They are LEXEMIC-SEMEMIC EQUIVALENCES. Example: *to lead a dog's life/menen une vie de chien.*

If partial lexemic correspondence exists between the French and English animal metaphors, we have a case of close equivalences. These can be called SEMEMIC EQUIVALENCES WITH PARTIAL LEXEMIC SIMILARITY. These cases occur when French and English select a different animal as part of the lexical constituents of the metaphor. Because of their partial lexotactic similarity, these metaphors are more easily assimilated by the non-native speaker. Examples:

Equivalences	Animal Mutation
to buy a pig in a poke *acheter chat en poche*	pig > chat (cat)
to have bats in the belfry *avoir des araignées au plafond*	bats > araignées (spiders)
to rise with the lark *se lever au chant du coq*	lark > coq (rooster)
a snake in the grass *une anguille sous roche*	snake > anguille (eel)
to have other fish to fry *avoir d'autres chats à fouetter*	fish > chats (cats)
Don't put the cart before the horse. *Ne mettez pas la charrue devant les boeufs.*	horse > boeufs (oxen)

If no animal lexeme appears in the English or French expression, the lexotactics of the expressions will behave very differently to the point of yielding an idiom which must be memorized as a completely different lexico-cultural collocation. These expressions can be called distant equivalences, or purely SEMEMIC EQUIVALENCES. They must be looked up in dictionaries of lexico-cultural collocations. Examples:

No Animal Lexeme in English	No Animal Lexeme in French
faire tourner quelqu'un en bourrique *to drive someone crazy*	*to make an ass of oneself* *faire l'idiot*

sexual connotation is present in the following animal metaphors in French:

Metaphor	Animal used	Connotation
être monté comme une âne	'donkey'	*to be well endowed*
une anguille	'eel'	*male organ*
une bique	'nanny-goat'	*a passive homosexual*
bourriquer	'to donkey'	*to have sex*
chatte	'female cat'	*pussy*
avoir du chien	'dog'	*to be sexy*
goujon	'gudgeon'	*inexperienced pimp*
grenouille	'frog'	*sperm*
guenon	'she-monkey'	*prostitute*
langouste	'crayfish'	*prostitute*
lièvre	'rabbit'	*easy woman*
elle a vu le loup	'wolf'	*she has lost her virginity*
maquereau	'mackerel'	*pimp*
matou	'male cat'	*sexy man*
morue	'cod'	*prostitute*
poule	'hen'	*a kept woman*

5.0 ANIMAL METAPHORS AND TRANSLATION

In the realization of animal metaphors from French into English and vice-versa, we have a case of translation only if the lexemes and sememe of the animal metaphor find their exact correspondence in the other language. Such cases are very rare. Examples:

English	French
to lead a dog's life	*mener une vie de chien*
goose step	*pas de l'oie*
flea market	*marché aux puces*
lion's share	*la part du lion*
flea bitten	*mordu par les puces*
sly as a fox	*rusé comme un renard*
stubborn as a mule	*têtu comme un mulet*
By night, all cats are grey.	*La nuit, tous les chats sont gris.*

5.1 ANIMAL METAPHORS AND THE NOTION OF EQUIVALENCE

Equivalence is a translation process which consists in transferring the situation found in the source language into the target language by different lexico-stylistic devices. The process of rewriting regarding metaphors varies according to the nature of the metaphor. If one is dealing with a live metaphor or a metaphor of *la parole*, the rewriting process will involve a high degree of personal style and creativity. Translating a dead metaphor or a metaphor of *la langue*, as is the case of animal metaphors, is a different story. Animal metaphors are lexico-cultural collocations already frozen in the lexicon of French and English. One cannot tamper with their

No Animal Lexeme in English	No Animal Lexeme in French
C'est un vrai Saint-Bernard. *He is a good Samaritan.*	*cock-and-bull story* *histoire abracadabrante*
A la queue leu leu *single file*	*knee high to a grasshopper* *haut comme trois pommes*
vivre comme un coq en pâte *to live in clover*	*It gets my goat.* *Ça me met en boule*
être à cheval sur quelquechose *to sit astride on something*	*He thinks he is the cat's whiskers.* *Il se croit le nombril du monde.*

5.3 A SPECIFIC ANIMAL IN ENGLISH VERSUS A GENERIC ANIMAL IN FRENCH

French is rarely more specific than English in its choice of animal for use in a metaphor. When *une cervelle de moineau* (sparrow) translates as *bird-brained* and when the gastronomic expression *nid d'hirondelle* (swallow) is rendered in English by *bird's nest*, these are exceptional. For as a rule, it is English which selects the more specific animal to use metaphorically and French which remains generic.

Sometimes in French, the specificity appears in the sexual gender of the animal. Thus a *black sheep* becomes *une brebis* (ewe) *galeuse;* a wolf in sheep's clothing is *un loup déguisé en brebis;* to go to bed with the chickens translates *se coucher à l'heure des poules* (hens). Some further examples are:

Specific Animal in English	Generic Animal in French
as the crow flies	*à vol d'oiseau* (bird)
to take a hair of the dog that bit you	*reprendre du poil à la bête* (animal)
a ladybug	*une bête à bon Dieu* (animal)
Don't be a silly ass.	*Ne fais pas la bête.* (animal)
a silly goose	*une bébête* (animal)
as gentle as a lamb	*doux comme un mouton* (sheep)

5.4 THE CASE OF HOLY PLUS ANIMAL

The animal metaphors consisting of holy + an animal lexeme in English, all used as exclamations to express 'surprise', are rendered by the exclamation *sapristi!* in French. *Sapristi!* stems from a deformation of the word *sacristie, sacristy,* 'a room in church housing the sacred vessels and vestments.' One can therefore conclude that only the holy segment of the English metaphor is translated into French, even when the translation is *mon Dieu* (my God) or *bonne mère* (Mother of God). Thus *holy cats!, holy mackerel!* and *holy cow!* all translate *sapristi!* or *mon Dieu!* or *Bonne Mère!*

6.0 ANIMAL METAPHORS USED AS TECHNICAL TERMS

Animal metaphors play a role in French as technical terms in the world of architechture, education, lapidary arts, sports, couture, tools and industry, gastronomy, navigation, medicine, botany and the military. As shown in the equivalences, some of them translate into an animal metaphor in English.

French		English
	Architecture	
oeil-de-boeuf		*bull's eye* (window)
	Education	
taupe		*special math class*
rat de bibliothèque		*bookworm*
tapir		*student who takes private lessons*
	Lapidary Arts	
oeil-de chat		*cat's eye*
	Sports	
brasse papillon		*butterfly stroke*
	Couture	
queue-de-morue		*tail coat*
noeud papillon		*bow tie*
	Tools and Industry	
queue-de-morue		*flat brush*
queue-de rat		*rat tail*
sauterelle		*false square*
pied-de-biche		*nail claw*
pied-de mouton		*steam roller*
	Gastronomy	
nids d'hirondelle		*bird's nests*
fromage à la pie		*cheese with herbs*
	Navigation	
nid de corbeau		*crow's nest*
nid de pie		*crow's nest*
	Medecine	
oeil-de-perdrix		*corn* (on toes)
	Botany	
vesse-de-loup		*puffball*
	Military	
pas de l'oie		*goose step*

7.0 CONCLUSION

As shown in this paper, animal metaphors constitute an important aspect of the lexico-cultural wealth of French and English. As dead metaphors or metaphors of *la langue*, they span over all areas of idiomaticity: morphemic, lexemic and sememic. They make full use of the phonological stock of French and English as prosodemes. Their usage applies to all registers of speech: slang, colloquial, literary and technical language. They are as colorful, picturesque and lively as the animals which permit their lexicological existence. And they are as old as the Garden of Eden and Noah's Ark.

The frequency of their usage renders them rather easy to assimilate in a monolingual context. However, in a bilingual situation, even in two languages as closely related as French and English, the difficulty of the acquisition and retention of animal metaphors resides in the small degree of parallelism which exists between them. They are generally sememic equivalences with very little lexemic and morphemic kinship.

This comparative study of animal metaphors in French and English has identified some of the similarities and the many divergences which they share. It is offered as nothing more than a guide which, on a sunny August afternoon, may make more enjoyable and enriching a walk through the bilingual zoo of language.

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Locke's Definitional Semantics, Condillac's Critique, and the Consequences

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John Locke begins chapter twenty-three of book two of his An Essay Concerning Human Understanding as follows:

> The Mind being, as I have declared, furnished with a great number of simple Ideas, conveyed by the Senses, as they are found in exterior things, or by Reflection on its own Operations, takes notice also, that a certain number of these simple Ideas go constantly together; which being presumed to belong to one thing, and Words being suited to common apprehensions, and made by use for quick dispatch, are called so united by one subject, by one name; . . . (II, xxiii, 1).

This is fundamentally the notion behind a view of the mental representation of the meanings of words that has come to be called the definitional view. It holds that word meanings are represented as having internal structure consisting of component units which spell out the conceptual structure of a word's meaning in the manner of definitions. Thus the word "man," according to Locke, can be defined as standing for the idea of "a solid extended Substance, having Life, Sense, spontaneous Motion, and the Faculty of Reasoning (III, iii, 10)." As intuitively simple and appealing as this definitional view might seem it nevertheless came into such considerable criticism in psycholinguistics in the 1970s and 1980s (see especially Fodor et al, 1975 and 1980) that it came to be considered in the literature as having been completely discredited. I myself (Gonsalves, 1988 and 1990) have defended the definitional view from the perspective of the semantic theory of Jerrold J. Katz (1972, 1989), and recently I have been considerably assisted in this defense by McNamara and Miller (1989) who, in a thorough critical review of all of the evidence and arguments came to the conclusion, three hundred years after the publication of Locke's Essay, that "there's little evidence against conceptual structure and there's some evidence for it."

This paper is an attempt to present for your consideration an idea that developed out of my reading of Locke's Essay and Etienne Bonnot De Condillac's An Essay on the Origin of Human Knowledge; Being a

Supplement to Mr. Locke's Essay , translated from the French by Mr. Nugent (1746). I found in Locke's Essay a strong resemblance to the definitional view of the representation of word meaning that I had studied through Katz. But in reading Condillac's Essai I found an explicit rejection of definitions and a preference for what Condillac calls analyses. While Condillac's notion of analysis does allow that complex ideas can be "decompounded," suggesting that complex ideas are composed of several simple ones, it nevertheless, combined with his notion of the "connexion of ideas," is a sufficient departure from the concept of definitions to encourage alternative explanations of the representation of word meaning; in fact, I will try to show that it resembles at least one contemporary alternative account which relies on Carnap's notion of meaning postulates, an alternative suggested by Fodor, Fodor, and Garrett (1975). In addition we find that Condillac's Essai had a significant influence on framing discussions regarding the nature of language while Locke's own Essay was misunderstood and often rejected (Aarsleff 1974 and 1971). This leads me to the main suggestion of this paper which is that the relative rejection and disregard by philosophers of language of the definitional view of the representation of word meaning so clearly expounded by Locke was due partly to Condillac's explicit rejection of it and the differential influence of these two important figures on future investigations of the nature of language.

Before going any further, however, I should note that I am proposing this account in only a very tentative manner. The ideas that I will present here should be considered more as ideas that can be used to initiate further more thorough examination than as conclusive statements. In particular, what is required is a more complete understanding of the whole system of Locke's Essay than I possess at this point in time.

There are basically two crucial points concerning which Locke's views about the way in which words get their meanings resemble definitional theories like that of Katz. The first has to do with what is called the intensionalist-extensionalist debate (Katz, 1975). Intensionalists take the position that in order to explain how language refers to the world we must posit a level of representation in our theory of meaning at which the senses of expressions are represented. These senses or intensions then determine the connection between linguistic expressions and the world. On the other hand, extensionalists claim that there is no need for such an intermediate level of representation, but that instead the extensions of expressions, what they refer to in the world, can be determined directly from

the expressions themselves, perhaps on the basis of their truth conditions (see, for example, Davidson, 1984). Moreover, for extensionalists the very notion of the sense or meaning of a linguistic expression is an illusion, there being "no fact of the matter" with respect to meaning (Quine, 1953).

The second point is whether the meanings of words are represented as made up of their component concepts in a definitional fashion, or whether they are represented non-decompositionally, that is, without any internal conceptual structure. This issue is closely related to the intensionalist-extensionalist issue since a definitional position would tend to support the validity of such meaning-related concepts as analyticity, which opponents of the intensionalist position, such as Putnam (1975) and Quine (1953), have argued against. Without going any further into Katz's semantic theory it is sufficient for our purposes here to say that it is intensionalist and definitional (Katz, 1972 and 1989).

Now, with respect to the first issue, the intensionalist-extensionalist debate, we find directly that Locke subscribed to a view that foreshadowed the intensionalist position. This view, which provides a solution to what Aarsleff (1982) has called the double conformity problem, is generally that words stand for concepts or ideas instead of for things. Thus, according to Locke,

> Besides articulate Sounds therefore, it was farther necessary, that he should be able to use these Sounds, as Signs of internal Conceptions; and to make them stand as marks for the Ideas within his own Mind, whereby they might be made known to others, and the Thoughts of Men's Minds be conveyed from one to another (III, i, 2).

For Locke, the impression that words stand for things is a mistaken one, in fact, one of the abuses of language. Locke sees this mistaken equation of words and things as arising mostly among those "who confine their thoughts to any one system," and as leading to "a Gibberish, which in the weakness of Humane understanding, serves so well to palliate Men's Ignorance, and cover their Errours (III, X, 14)." In addition, this type of mistake could well be avoided "if Men would tell, what ideas they make their words stand for (III, x, 15)." In other words, by identifying words with ideas instead of with things philosophy could proceed more productively and systematically.

However, Locke is careful to point out that in many cases words signify different ideas in different people's minds, which is why he suggests that people say

what ideas their words signify. And this is precisely where the importance of definitions arises, for with the help of a word's definition, "which is nothing else, but the shewing the meaning of one Word by several synonymous Terms . . . the Idea it is made a sign of and annexed to in the Mind of the Speaker, is as it were represented, or set before the view of another; and thus its Signification ascertained (III, iv, 6)." Definitions, then, are used to pin down the concepts that words signify and are important in the "search after Knowledge, and philosophical Verity (III, xi, 24)."

While in one respect, then, definitions are given a utilitarian function to rectify the ideas of men, much of Locke's epistemology as expressed in the Essay, with its explanation of the ways in which, through reflection, the mind constructs the concepts words signify has a definitional emphasis. For example, if we look at Locke's discussion of general terms we find that after explaining the mental construction of the ideas signified by such terms as a process of abstracting from particulars, he then goes on to show how this mode of the construction of the ideas signified by general terms corresponds to the sorts of definitions these words have. In his account here he justifies his departure from the scholastic notion of a definition as consisting merely of a genus and differentia by noting that "Languages are not always so made, according to the rules of Logick, that every term can have its signification exactly and clearly expressed by two others (III, iii, 1-9)." In fact, if we look again at Locke's definition of man, one which he acknowledges as being borrowed from "the Schools," we see in it an increasing degree of specificity in the components of this complex concept. Again, man is defined as "a solid extended Substance, having Life, Sense, Spontaneous motion, and the Faculty of Reasoning." This laying out of superordinate and subordinate components in the concept of man corresponds to the process of abstraction by which the mind constructs the "Ideas" signified by general terms. The above definition is at least as good as one--for example "rational animal"--that conforms to the rule of giving only genus and differentia. The suggestion seems to be clear that definitions are mental constructs so fundamental to the nature of language that we cannot allow the Schools to dictate their structure in an a priori fashion. Rather, the structures of definitions are to be determined by linguistic investigation.

In his discussion of simple terms Locke explains that in this case definitions are not possible. Here he seems to have forgotten his willingness to depart from

the genus-deferentia rule since words cannot always be defined by exactly two terms. Were he to be consistent he would have to note that just as in many cases definitions have more than two components, in many others they have, being simple and not complex, only one. Here, however, to be fair to Locke, what he wants to make clear is that the process of abstraction must stop somewhere, and that to try to go further is pointless. It is interesting to note that the definitional view has been questioned by contemporary critics in part by pointing out the existence of such simple expressions that, it is claimed, lack adequate definitions. For example, Fodor, Garrett, Walker, and Parkes claim that a definitional theory is unable to account for the following entailment:

"X is red" entails "X is colored."

However, a definitional view which expresses definitions as hierarchical structures and which is essentially interested in accounting for semantic properties and relations between linguistic expressions and not with conforming to some preconceived view of what a definition is could very well propose a definiton of redness that says that it is a physical quality that is a color that is redness, the use of redness in its own definiens being justified by virtue of its nature as a primitive; in fact, Locke's comments here can be taken as suggesting that the concept of redness is a primitive. Something very much like this definiton of red has been offered by Katz in response to his critics (1989). However, such a definition of redness would contradict both the notion that definitions are made up of "several other synonymous Terms" as well as the utilitarian notion of the function of definition in explication. Nevertheless, while Locke would not go so far as to call something like this a definition, in the following passage he seems to suggest that color concepts like red and white are in fact represented in the mind in some such fashion:

> And therefore when to avoid unpleasant enumerations, Men would comprehend both White and Red, and several other such simple Ideas, under one general name; they have been fain to do it by a Word, which denotes only the way they get into the Mind. For then White, Red, and Yellow, are all comprehended under the Genus or name Colour, it signifies no more, but such Ideas, as are produced in the Mind only by Sight, and have entrance only through the Eyes. And when they would frame yet a more general term, to comprehend both colours and

> Sounds, and the like simple Ideas, they do it by a Word that signifies all such as come into the Mind only by one Sense: And so the general term Quality, in its ordinary acception, comprehends Colours, Sounds, Tastes, Smells, and tangible Qualities, with distinction from Extension, Number, Motion, Pleasure, and Pain, which make impressions on the Mind, and introduce their Ideas by more Senses than one (III, iv, 16).

That is, to call something like "a physical quality, which is a color, which is redness" a definition of redness is more of a departure from the Schools than Locke is willing to make. Nevertheless, it seems clear that Locke assigns the notion of definition a fundamental epistemological function in his conception of the human understanding, since for him the meanings of words are constructed in the mind and consist, like definitions, of bundles of component concepts.

In Locke's semantics, then, the meanings of words are simple ideas or bundles of ideas in the mind. Moreover, the component ideas in these bundles, contrary to what has been called the sensorimotor theory of word meaning (Fodor, Garrett, Walker, and Parkes, 1980), are not all sensory or perceptual ideas. Locke is too sophisticated a philosopher to think that bundles of purely sensory ideas could constitute the meanings of general terms. Rather, some of the component ideas in these bundles are very abstract concepts, as we can clearly see by simply looking at his definition of man. Locke's account of how such non-perceptual concepts are constructed in the mind is that such abstract ideas are created in the mind by a process of reflection upon internal mental operations, which is crucial to his epistemology.

It is precisely because Locke's semantics is so definitional in character that according to Katz, he "comes closer to the truth about analyticity than any philosopher until G. E. Moore (1988, p. 49)." Katz's account of such analytic sentences as "bachelors are unmarried men" depends essentially on the definitional character of the representations of meaning in his theory. While it is not necessary for us to concern ourselves here with Katz's definition of analyticity, it is important to note that Katz finds in Locke a very similar account of analyticity, one, moreover, which is based on Locke's notion of complex ideas which are composed definitionally out of simple ideas. Katz cites three passages from the Essay to support his contention here (see IV, viii, 2-8).

When we turn to Condillac's Essai which appears in Nugent's translation as "A Supplement to Mr. Locke's

Essay," we find that definitions have lost the status that they had in Locke. For while Locke was willing to depart from the notion of definitions of the Schools to the extent of allowing definitions to consist of more than just two terms, Condillac seems to insist on a rigorous application of the genus and diferentia conception of definitions and, consequently, finds this notion completely useless to explain how the mind constructs the meanings of words. Thus Condillac asserts "the inutility of definitions; that is of those propositions wherein we attempt to explain properties of things by a genus and difference (I, v, 10)." In fact, Condillac is strongly opposed to using the notion of definition in his epistemology at all. He says:

> This example shews of what importance it is to adhere to my method; that is, always to substitute analyses in the place of definitions. I am even of the opinion that we ought to carry our delicacy so far, as to avoid making use of expressions, which are commonly adopted in philosophical schools (I, v, 14).

Condillac then goes on to suggest that by using definitions Locke has been guilty of leading "the generality of readers into error." Moreover, Condillac makes a further distinction between ideas and notions: "the former signifies a perception considered as an image, and the second an idea which the mind has framed to itself (I, iii, 16)."

In thus departing from the terminology of Locke's Essay, Condillac seems to place more emphasis on the privacy of language which in Locke was something to be rectified by, among other things, definitions, which would give a certitude to ideas. In fact, when Condillac talks about clarifying ideas and notions he seems to be talking about the way in which we clarify our individual ideas and notions to our own individual understandings. Thus, he says the following:

> It is received opinion, that words ought to be understood according to the common acceptation. And indeed one would at first imagine there is no other way of making ourselves understood. And yet I cannot help thinking we ought to pursue a different method (II, ii, 11).

Condillac then continues to describe the process of framing new combinations of ideas in order to overcome the inadequacies and inaccuracies of existing ideas. This process relies importantly on direct exposure to objects, and avoids definition:

> The precision of language must be preserved by the same means by which it was first acquired.

> We ought therefore to begin with placing ourselves in some sensible circumstances, in order to frame signs for expressing the ideas we first acquired by sensation and reflection; . . . (II, ii, 12).

But what is more striking is that this process of clarifying ideas is an individual one. Condillac admits that "some perhaps will object, that it is demonstrable the same objects produce different sensations in different persons (II, ii, 17)." His answer to this is "notwithstanding all this we shall still understand one another sufficiently in regard to the end we propose in metaphysics and moral philosophy." The use of definitions for clarifying ideas has been abandoned for a more thorough-going empiricism which seeks to return to the original sensations produced in the mind by exposure to objects in order to accomplish a somewhat different task: namely, to improve our language by applying more accurately what science and philosophy determine to be the true signification of words.

When we look at what Condillac understands by analysis, which is what he would substitute for definitions, we see that it leads also to his notion of the "connexions of ideas."

> . . . to analyze, in my opinion, is nothing more than an operation arising from the concurrence of those operations that went before. It consists only in compounding and decompounding our ideas, in order to compare them differently, and to discover the relations they have among themselves, together with the new ideas they are capable of producing (I, ii, 67).

Comparing ideas leads to making connections between them. The process of analysis is one of discovering these connections and taking us back to the original signification of words.

> When we compare our ideas, the consciousness we have of them is the cause of our knowing that they are the same in several respects in which we consider them, which we manifest by connecting those ideas by the word is; and this we call affirming; . . . (I, i, 69).

It seems to me that this feature of analysis that Condillac would seek to substitute for definitions is similar to setting up a list of the analytic entailments of words. That is, the affirmation "a man is a rational animal" is an analytic entailment. This strikes me as similar to a proposal, suggested by Fodor, Fodor, and Garrett as an alternative to definitions, of using Carnap's meaning postulates to take care of the analytic entailments of words. In a simplified notation the above

analytic entailment might be expressed by the following meaning postulate:

for_all x (MANx entails ANIMALx and RATIONALx)

Condillac's use of the term "analyses" in itself suggests a similarity to the proposal of Fodor, Fodor, and Garrett to use meaning postulates, which as Quine notes in "Two Dogmas of Empiricism" constitute an attempt, though an explanatorily inadequate one, to account for analyticity (Quine, 1953).

Now the simple fact that Locke made important use of the concept of definitions in his Essay while Condillac substituted analyses for definitions does not by itself explain the loss of the definitional view of the representation of word meaning to succeeding work in the philosophy of language. However, when we combine this with the thoroughly examined differential influence of Condillac and Locke as described by Aarsleff we can see how the definitional view that I find often implicit and in some instances clearly explicit in Locke was not attended to or developed further by later philosophers. Of Condillac's Essai Aarsleff says the following: "Rarely in intellectual history has a single work raised a European-wide debate so quickly yet continued to dominate the debate for so long, whether in Germany, France, or England (1974; in Aarsleff, 1982, p. 199)." But of the reputation of Locke's Essay we find that there was a misuderstanding in many instances of the rationalist side of Locke's ideas and a complete and very extensive misrepresentation of these ideas by many of Locke's nineteenth century critics. This misreading of Locke is traced up to more contemporary times in what Aarsleff sees as a similar misreading on the part of Noam Chomsky, an influential figure in linguistics over the last thirty years or so. The consequence of this has been that Locke has been neglected as an insightful philosopher of language, leading to the loss of some of his most important ideas, including, as I see it, the notion of the definitional representation of word meaning.

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POLYSEMY AND SYNTACTIC VARIABILITY IN THE SURFACE VERB 'BREAK'

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If as Wierzbicka insists (1986: 76) "... it is the task of linguistics to pair surface structures with meanings encoded in them ..." and if the study of grammar is the study how meaning is encoded into form,[1] then one approach to the task of the grammarian / linguist would be to find out how underlying, meaning-based forms are manifested in various surface forms and how these forms are distributed. Such a view of the task of those interested in the theoretical study of language is an indictment of much that goes in the name of 'linguistics' today including much work performed in transformational generative grammar (TGG) under whose aegis linguists are forever trying to certify their model by concentrating on matters peripheral to the study of language. For example, Pollock wants the grammar to be able to distinguish between the following two sentences (1a,b) and Epstein needs to describe as grammatical (2):

(1) a. Not to seem happy is a prerequisite for Writing Novels.
b. *To seem not happy is a prerequisite for Writing Novels. Pollock's (22a,) (1989:376)
(2) Which pilot who shot at it hit every MIG that chased him. Epstein's (14) (1989:310)

Having the grammar distinguish the grammaticality of (1a,b) makes it unduly complex and considering all three sentences in the study of linguistics reduces the discipline to a form of puzzle discrimination, not the study of language.

Langacker (1988:43) comments on this aspect of TGG stating:

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[1]Linguist such as Langacker show that they hold this position when they state: "By contrast, cognitive grammar claims that grammar is intrinsically symbolic, having no independent existence apart from semantic and phonological structure. (1988:5)"

> ... the treatment of so-called 'grammaticality judgements' in the generative tradition has been little short of scandalous ... the absence of any firm empirical basis for assessing grammaticality, and the dependence of sweeping theoretical claims on judgements that are in fact quite fragile and variable. (Langacker 1988:43)

As a result, transformational linguists have spent their time providing for the description of linguistic puzzles that have little or no status in language and as a further result, Hudson (1989:813) can comment "... none of us have ever seen a GB (Government and Binding theory within TGG) grammar even for a fragment of a language."

With this in mind, a study of the underlying forms of the verb break was undertaken. This study follows Fillmore (1970) who studied this verb in conjunction with a study of the verb, hit. Ruhl (1979) also studied the verb, break, but in conjunction with a study of the verbs cut and tear. Ruhl's study attempted a sweeping synthesis of 6000 example sentences in four pages of text, leaving a puzzle that is almost impossible to decipher. This much appears evident, however, Ruhl's attempt (1979:200) to classify these verbs according to the concept of "... UNIT: the 'thing' which is broken, cut, or torn ..." is productive although his classification sometimes seems inaccurate. For example, the breaking of shale (#301, p. 212) is somehow different from the breaking of a vase (#3, p. 205). It is hard to see how such an analysis supports Ruhl's contention that "... a full delineation of all the syntactic possibilities will strengthen the claim that these verbs have a unified meaning" (1979:203). Furthermore, Fillmore's study was incomplete in that it did not attempt a synthesis of the greater number of usages of break. Besides, he only pointed out that break has a three place predicate since it can function in the following sentences (1970:122):

(3) a. John broke the stick with a rock.
b. The rock broke the stick.
c. The stick broke.

(See also Allerton (1982:56,66) and Palmer (1988:232.)

In doing this, Fillmore touched on only one of the underlying verbs that finds manifestation in the surface verb break for although his observations hold for the sentences at (3), they do not hold completely for the sentences at (4) and (5).

(4) a. The boys broke the electric canopener with a rock.
b. *A rock broke the electric canopener.
c. The electric canopener broke.
(5) a. They broke the contract with malice.
b. *Malice broke the contract.
c. *The contract broke.

The reason for the difference in the patterning of the surface verb break in the sentences at (3), (4) and (5) can be found in the differences among the underlying verbs involved. The primary meanings of break, ('shatter,' 'snap,' or 'burst'), the underlying forms for the sentences at (3), share a feature of meaning, 'self-destruct,' with one of the secondary meanings of break, 'cause to become inoperable.' This feature of meaning is not present in the verb underlying the sentences at (5), break, 'abrogate,' which occurs with nouns such as covenant, promise and contract as objects in the predicate.

In this manner, following a study of the verbs of sense in English (Ney 1985), it seemed that a similar study of a single verb could be undertaken with the use of synonyms to roughly identify the semantic areas covered by any verb on the assumption that speakers of a language carry internalized semantic maps which can be described through the use of synonyms and near-synonyms. It also seemed that, if what Wierzbicka (see above) and others say is true, then, the syntactic patterning, of surface verbs could be predicted from these semantic mappings which would be assumed to show the underlying semantic forms of these verbs thus providing a manner for dealing with the concept of iconicity in syntax for relating underlying semantic form to syntactic patterning.

To see if these assumptions might hold true, the verb break was chosen because (1) it had received prominence in previous studies (Fillmore 1972; Ruhl 1979) and (2) from a study of the OED entries for break, it seemed that this verb offered a great deal of polysemy and syntactic complexity with well over 52 separate sections in the entry. In the study, it turned out that, the closer the synonym was to the meaning of break under investigation, the more likely it would be for the synonym to manifest the syntactic characteristics of break. For example, break a twig and snap a twig are almost identical in meaning. Their distribution is thus very similar as per the examples in (11) below:

(6)Ron broke the twig with his finger. Ron snapped the twig with his finger.
His finger broke the twig. His finger snapped the twig.
The twig broke. The twig snapped.

In any case, besides this, from a cursory examination of the entries for break it appeared that the more clearly defined semantic areas covered by the various 'meanings' of break could be mapped in terms of the subjects and objects occurring with the verbs. These were thus collected into groups depending on whether they were brittle or soft, whether they dealt with physical or psychical phenomena; whether they were perceived as a unified whole and so on. They were then checked to see if in fact they corresponded roughly to a one (or two word) synonym and whether they manifested differences in syntactic patterning. First all of the verbs in Ruhl's article were thus categorized. Then they were checked. It appeared that Ruhl's analysis that classified some patterns so that break with a preposition functioned differently from break without. Such a procedure would require that the following two usages be classified differently:

(7) ... a great inland sea ... broke a passageway through the canyon ... R173
(8) ... the river breaks into a number of channels ... (R75)

Since open can function as a synonym for both, they are classified as the same usage in this study.

(9) ... a great inland sea ... opened a passageway through the canyon ... R173[2]
(10) ... the river opens into a number of channels ... (R75)

With this as background, the surface verb break shows distinct representation in the following semantic areas: One of the primary meanings of break is closely synonymous with 'shatter'; as such, it has a three place predicate in which agent, patient and instrument can all be subjects in derived and simple sentences as in the following:

(11) Ron broke the glass with a hammer. Ron shattered the glass with a hammer.

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[2]The designation 'R' plus a number indicates that the sentence comes from Ruhl 1979.

The hammer broke the glass. The hammer shattered the glass.
The glass broke. The glass shattered.

Within this meaning all objects must be 'shatterable' and are thus marked [+FRAGIBLE] in the underlying structure. Any meanings occurring with such objects and with different meanings must be further marked for differing perspectives. Thus, in The ashtray broke in half (R89) the basic meaning of 'shattered' is modified by a further marking on the verb phrase, the adverb phrase, in half. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R1 glass; R3 vase; R89 ashtray; R287 rock; R301 shale; R73 coal; R72 ice R252 ice, R298 china rabbit.

Another primary meaning of break is closely synonymous with 'snap'; as such, it also has a three place predicate in which agent, patient and instrument can all be subjects in derived and simple sentences as in the following:

(12)Ron broke the twig with his finger. Ron snapped the twig with his finger.
His finger broke the twig. His finger snapped the twig.
The twig broke. The twig snapped.

Within this meaning all objects must be 'shatterable' and are thus also marked [+FRAGIBLE] in the underlying structure. Most of the objects could also be marked [+LONG] [+THIN] since usually long thin things 'snap' although The axehead broke (snapped) through the eye (R299) is quite all right. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R2 twig; R8 scab; R184 stick; R299 axehead; R330 arrow R332 monofilament R300 jawbone; R310 trees (off); R63 fencerail R131 chromosone (away), R132 sugarcane (off), R134 ice (off) R207 clay, R135 flint. For some items, such as trees the instrumental subject may be precluded unless sentences such as The wind broke (snapped) off the trees with the force of a thousand horses producing The force of a thousand horses broke (snapped) off the trees qualify as sentences with instrumental subjects.

A third primary meaning of break is closely synonymous with 'burst'; as such, it also has a three place predicate in which agent, patient and instrument can all be subjects in derived and simple sentences as in the following:

(13) Ron broke the balloon with a pin. Ron burst the balloon with a pin.

The pin broke the balloon.	The pin burst the balloon.
The balloon broke.	The balloon burst.

Within this meaning all objects must be 'shatterable' ('burstable') and are thus also marked [+FRAGIBLE] in the underlying structure. It would also appear that objects for this meaning are round ((circular, cylindrical) [+ROTUND] and capable of containing fluids under pressure. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R7 balloon. The OED lists boils, (1533, 1576, 1652, 1802), veins (1557), berries (1592), and bombs (1711) with this meaning. The distribution of the three underlying forms of the verb break with various predicates suggested here, one suggested by the verb shatter; another, by snap and a third, by burst, can be seen in the Appendix.

It is interesting to note that the three verbs underlying the surface verb break discussed to this point are marked [-PROG] for [-PROGRESSIVE] since these verbs have a peculiar distribution with the progressive tense marker. Thus, in most environments, *I'm breaking my glasses would be ungrammatical since the verb, break, is perfective in its meaning. In these environments, the term *halfbroken would be very unusual to say the least. If something is broken, that's that -- it's broken. In this respect break is different from verbs such as cut and tear as Morreal has pointed out "... cut and tear imply an ongoing, progressive division, while break does not" (Morreal as cited in Ruhl (1979:203)). Similarly, the action in the meaning of the verb, break, is punctiliar. The act of breaking happens in an instant. As a result, in most environments, the surface verb break is not normally compatible with the progressive tenses.

(14) a. *John is breaking a wine glass.
b. *The wine glass is being broken.

In specified contexts, however, the progressive tenses can be used with break as in the following:

(15) a. Since John is going on the wagon, he is right now breaking every wine glass in the house.
b. Believe me; the wine glasses are being broken.

Thus if the object is plural or signifies a plural entity the action in the verb is iterative and the progressive tense marker can be used with the verb, break.

(16) a. The waves are breaking against a rock.

b. The otters are swimming along underwater, breaking the surface every once in awhile.
c. Their ranks are breaking like thin clouds before a Biscay gale. OED 1824 Macaulay Ivry 43
d. John is breaking every doll in the house.
e. He has a reputation for breaking mechanical things.
f. He is breaking his promise again.

This is especially noticeable in sentences dealing with liquids, where the punctiliar nature of the action in break is still present, the iterative nature of the action permits the use of the progressive tenses with these verbs. In (21 a,b), the act of breaking is viewed as a series of acts and the underlying verb is marked [+ITERATIVE] so that the progressive marker is permissible with the surface verb break. Even if the object of the verb is singular, iterative action in the verb can permit or require the progressive as in (21f). Another way to look at this phenomenon is to see it as dealing with underlying plural semantic entities as in (21d,f) even though none of the nouns are marked syntactically for the plural. Thus, when the surface verb break is marked with an iterative aspect or associated with plural semantic entities, it can occur with the progressive aspect.

Following this, a series of usages, determined by meanings as classified by objects could be designated as secondary since the objects are not 'shatterable' and are thus marked [-FRAGIBLE]. Thus, the first secondary meaning of break is loosely synonymous with 'tear off'; as such, it has only a one place predicate in which the agent, can be a subject in derived and simple sentences; the patient and instrument do not qualify as subjects as in the following:

(17) Ron broke off a piece of bread with his hand.	Ron tore off a piece of bread with his hand.
*His hand broke off a piece of bread.	*His hand tore off a piece of bread.
*A piece of bread broke off.	*The piece of bread tore off.

Frequently, the source is marked with the preposition from as in the example below Ron tore off a piece of bread from the loaf with his hand. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R206 cornbread, R133 bread; R5 sweet potato.

Another secondary meaning of break covers the semantic area of 'open'. As such, this usage of break requires a one place predicate with an agent as noun. It occurs with nouns such as a trail (R176), a track (R175), a waterway (R174), channels (into) (R75), OED a path, a way.

(18) Ron broke trail with a machete.	Ron opened the trail with a machete.
*The machete broke trail.	*The machete opened the trail.
*The trail broke.	*The trail opened.

Instances which appear to be similar to sentences with the instrument as subject actually start out with agents in prepositional phrases. Thus, with the sled dogs in (24) sees a usage of with as accompaniment. Since the noun trail does not have physical reality as tree, glass, etc. it is treated as an abstraction following Ruhl's perceptive observation and is marked [+ABSTRACT] but [+PHYSICAL] since it is the kind of abstraction that finds its manifestation in physical substance.

(19) Ron broke trail with the sled dogs.	Ron opened the trail with the sled dogs.
The sled dogs broke trail.	The sled dogs opened the trail.

In The river broke channels (R174), the noun phrase would be marked [+AGENT] with a transfer feature even though it is inanimate since it functions as an animate agent.

A third secondary meaning of break is loosely synonymous with 'loosen'; as such, it has a one place predicate. As such it occurs only in the transitive with an agent subject.

(20) Ron broke the headlock with his arms.	Ron loosened the headlock with is arms.
*His arms broke the headlock. headlock.	*His arms loosened the headlock.
*The headlock broke.	The headlock loosened.

The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R65 headlock R185 grasp R249 grip R250 chain R121 palms (apart). Two instances in the OED have break loose in which break seems to be some sort of an aspectual marker in construction with 'loose.' Thus, in the sentence at

(21) break marks punctiliar aspect as well as indicating some features normally indicated by adverbs such as 'forcefully' or 'suddenly.'

(21) I broke loose from my captors.

A fourth secondary meaning of break is loosely synonymous with 'destroy'; as such, it has a two place predicate and occurs only in the transitive with an agent or instrumental subject; the sentence with the patient as subject is not gramatical.

(22)

The lawyers broke the conspiracy with the indictments.	The lawyers destroyed the conspiracy with the indictments.
The indictments broke the conspiracy.	The indictments destroyed conspiracy.
*The conspiracy broke.	*The conspiracy destroyed.

Objects of sentences with broke - 'destroy' are also marked [-FRAGIBLE]; most of them deal with abstractions and are thus marked [+ABSTRACT] [-PHYSICAL]. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R19 conspiracy, R24 consensus, R93 parts of speech, R25 link-sex and love, R315 ties-US-Cuba, R17 spirit-health, R187 limitation. The OED has the following: power-Swedes, and moral-force.

A fifth secondary meaning of break is loosely synonymous with 'abrogate'; as such, it has a one place predicate. Thus it occurs only in the transitive with an agent subject; the sentence with the patient or instrument as subject is not grammatical.

(23)

Ron broke his promise with an oath.	Ron abrogated his promise with an oath.
*An oath broke his promise.	*An oath abrogated his promise.
*His promise broke.	*His promise abrogated.

Objects of sentences with broke - 'abrogate' are also marked [-FRAGIBLE]; most of them deal with abstractions and are thus marked [+ABSTRACT] and most of them are verbal [+VERBAL]. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R23 promise, R64 taboo, R349 yoke-of-doctrine. The OED has faith, vows, wedlock, the Sabbath and peace as objects within this usage of break.

A sixth secondary meaning of break is loosely synonymous with 'stop'; as such, it has a one place predicate. Thus it occurs only in the transitive with an agent subject; the sentence with the patient or instrument as subject is not grammatical.

(24) Ron broke off negotiations with an oath.	Ron stopped his negotiations with an oath.
*An oath broke off his negotiations.	*An oath stopped his negotiations
The negotiations broke off.	The negotiations stopped.

Objects of sentences with break (off) - 'stop' are also marked [-FRAGIBLE]; most of them deal with activities and are thus marked [+ACTIVITY]. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R311 singing, R314 letter. The OED has jesting, tale, walk, sinnes, account, conferences as objects within this usage of break.

A seventh secondary meaning of break is loosely synonymous with 'cause to be inoperable / become inoperable'; as such, it has a two place predicate. Thus it occurs as a transitive verb with an agent subject and a patient object; the sentence with the patient as subject is grammatical but with the instrument as subject it is not gramatical.

(25) Ron broke the movie camera with a wrench.	Ron made the movie camera inoperable with a wrench.
*The wrench broke the movie camera.	*The wrench made the movie camera inoperable.
The movie camera broke.	The movie projector became inoperable.

Objects of sentences with broke - 'inoperable' are also marked [-FRAGIBLE]; most of them deal with machines and are thus marked [-INANIMATE] and [+ABSTRACT] since machines are abstract entities following Ruhl's suggestion; that is, a machine can be broken even when every visible part of it is intact. The instances in the Ruhl corpus which occur with this meaning and distribution are as follows: R322 movie projector, R4 zipper and R322 sawmill. It is interesting to note that 'break down' occurs with a similar meaning but with a different distribution. Break down occurs only with patient subjects; it also freely occurs with the progressive tense marker -ing. The lexical collocation, break down also occurs with the meaning 'destroy completely'; as such it has a completely different distribution from 'break down --inoperable', requiring an agent subject though not occurring with the progressive

tense (26). A third meaning of 'break down' is 'disassemble'; break, when it functions in this environment and with this meaning, does not have the same distribution as that of 'break down - destroy.' It most often occurs with an expressed goal; it also occurs with both concrete and abstract objects and the particle is separable from the verb (27). The OED has wall, house, safeguards.

(26) They broke down the Berlin wall with wrecking bars.
*Wrecking bars broke down the Berlin wall.
*The Berlin wall broke down.
*They were breaking down the Berlin wall with wrecking bars.
(27) The workers broke the machine down into all its components.
The workers are breaking the machine down into all its components.
The designers broke the plan down into its parts.
The designers are breaking the plan down into its parts.

Thus, of the secondary underlying forms of break, only three of these permit two place predicates in the sense used here. The first of these, break - 'destroy', permits the instrument to become the subject; the second of these break 'cause to be inoperable (be inoperable)' permits the patient as object as does break (off) - 'stop.'

In this study, tertiary meanings of break have neither agent subjects nor do they have objects of any kind. It is thus not possible to place them with the underlying forms categorized as having primary meanings since these forms had objects marked [+FRAGIBLE]. So also it is not possible to place them with the underlying forms categorized as having secondary meanings since these forms had objects marked [-FRAGIBLE]. These forms are thus in a category of their own since they are in fact one place predicates having only a subject and thus functioning as intransitive verbs. The first of these tertiary meanings is break - 'roil' as in the sentence at (28).

(28)The waves were breaking against the rocks. The waves were roiling against the rocks.

Actually, 'roil' is hardly a synonym at all for this meaning of 'break;' as nearly as can be determined, there are no close synonyms of break for this usage. The subject of the verb in this use of 'break',

however, is usually plural and, as a consequence, this usage of the verb, break, occurs freely with the progressive tense. The Ruhl corpus has this usage with waves (R10), and clouds (R9). The OED has this usage with ranks, billows, sea, and swell.

A second tertiary meaning of break occurs only when break is in construction with the particle down as in the sentences at (29).

(29) The machine broke down.	The machine became inoperable.
The machines were always breaking down.	The machines were always becoming inoperable.
The machine kept breaking down.	The machine kept becoming inoperable.

The comparable two place predicate with break down does not occur with this meaning; thus, Ron broke down the machine, has the meaning, 'disassemble.' In (30), this use of break has a one place predicate with the patient as subject; furthermore, the progressive tense is associated with this usage of break whenever the notion of plurality signals repeated occurrences of the action in the verb.

A third tertiary meaning of break occurs only when break is in construction with the particle, out, in which case break is loosely synonymous with start as in the sentences at (30).

(30) Rifle fire broke out.	Rifle fire started.
Rifle fire was always breaking out.	Rifle fire was always starting.
Rifle fire kept breaking out.	Rifle fire kept starting.

In (31), this use of break (with out) has a one place predicate with some sort of self-actuating subject; furthermore, the progressive tense is associated with this usage of break whenever the notion of plurality signals repeated occurrences of the action in the verb. This meaning also occurs with rifle fire (R212) and scuffles (R210) as subject. The OED has fire, leprosy, pestilence, measles, yellow fever, laughter, rebellion, antagonism (between two parties), riots, and goodness of heart.

A fourth tertiary meaning of break occurs only when break has as its subject the noun, voice, a situation in which break is synonymous with change as in the sentences at (31).

(31) His voice is breaking.	His voice is changing.

In (31), this use of break has a one place predicate with some sort of self-actuating subject. Furthermore, this is a rare occurrence of the verb break since the progressive tense is associated with this usage of break whether or not the notion of plurality signals repeated occurrences of the action in the verb. This meaning only occurs with the noun, voice, as subject.

Thus all of the underlying forms for the tertiary meanings of 'break' are intransitive and are thus not amenable to classification on the basis of whether the object is 'breakable'; in this study, marked [+/-FRAGIBLE]. All of the intransitive forms freely occur with the progressive tense marker; one, break 'change,' with a singular subject quite uncharacteristic of the various usages of break. Besides this, there are at least twenty different metaphorical usages of the verb 'break' occurring with a single object such as break ground, 'start a building,' or break new ground, 'innovate.' These usages are also not amenable to classification on the basis of whether the object is indeed 'breakable.' Attempts to go beyond a mere listing of these 'metaphorical' usages of break have so far been unsuccessful. Nevertheless, fully 70 percent of the non-metaphorical usages have been covered by the 16 categories in the scheme offered here.

In any case, for the study as a whole, it should be apparent that the early Fillmorean study of the role structure of break neglected the polysemy and consequent syntactic variability associated with this verb. Subsequent studies have not rectified the situation although the study of Ruhl (1979) might have if that study had focused only on the role structure of the verb, break. Subsequent studies in various works have not linked the polysemy of the verb to its syntactic variability. It is hoped that this study points the way to the feasibility of relating the various underlying semantic forms to the otherwise idiosyncratic syntactic patterns manifested by surface verbs. It is also hoped that this study will point the way to total accountability of various surface manifestations of underlying forms with a maximum amount of generalizabiblity.

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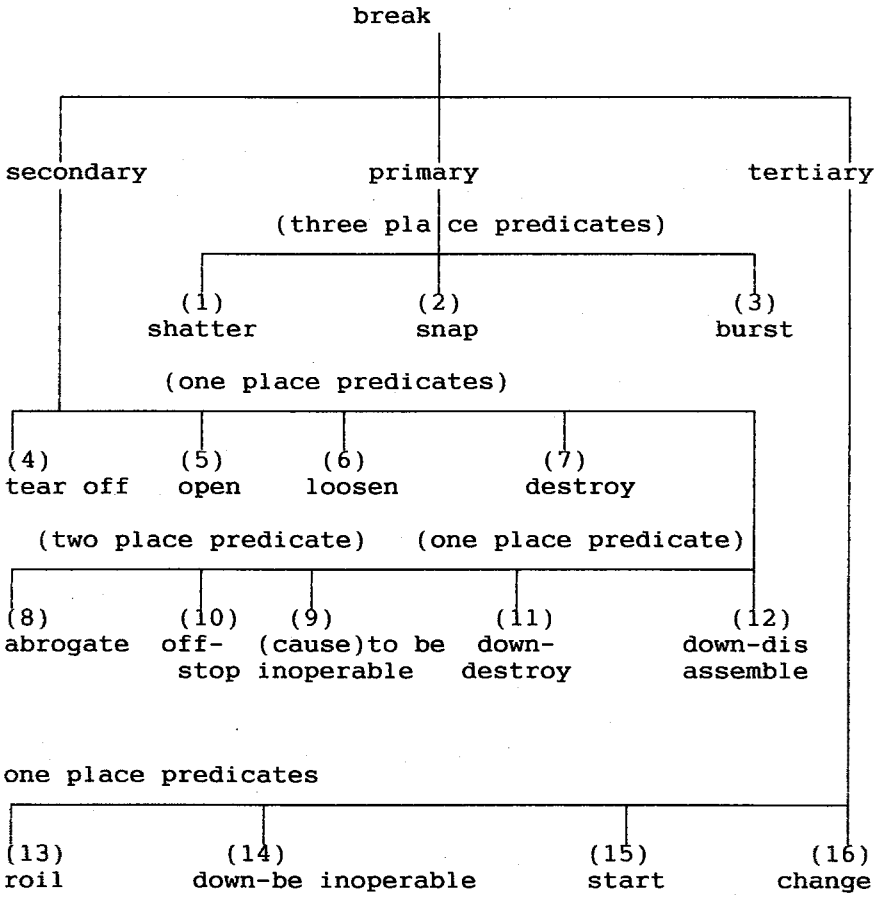
Appendix
Chart of Underlying Forms of Break



VI

DISCOURSE AND LITERARY STUDIES

DEVERBAL NOUNS IN GRAMMAR AND DISCOURSE*

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1. Introduction

Deverbal nouns with suffixation (eg. division, judgment and suggestion) have been discussed mostly in grammars, and discussion has rarely been extended to the discouse level (but see Carter 1987: 74-81 and Halliday 1985: Ch. 10). In my paper (1989b), I discussed mainly grammatical aspects of deverbal nouns; in particular I centred my attention on the countability of deverbal nouns in relation to idiomaticity. Quirk et al. (1985: 17.51-54, 17.124, I.34-5) touch on the formation of deverbal nouns by means of suffixation and the role deverbal nouns play in noun phrases in particular reference to modification by prepositional phrases such as

(a) ?the(ir) arrival for a month
(cf. They arrived for a month.)
(b) *the(ir) action in a nasty manner
(cf. They acted in a nasty manner.)
(c) *the(ir) contribution out of kindness
(cf. They contributed out of kindness.)

This problem has also been discussed in Webster (1977).

The co-occurrence of deverbal nouns with modifiers, particularly prepositional phrases, presents many interesting problems, and is in need of further investigation, but I am not going to go into this problem at the moment and instead I should like to concentrate on another interesting problem: how the noun phrase containing a deverbal noun behaves regarding given-new information processes in written discourse. In connection with this problem, Johansson and Hofland (1989: 5) make three points. Firstly, since the definite article is typically associated with given information and the indefinite article with new information, we expect phrases with the definite article to tend to appear at the beginning of the sentence and those with the indefinite article at the end. They demonstrated that this tendency is true in their LOB corpus. Secondly, noun phrases with the definite article are quite evenly divided between the beginning and the end. Thirdly, there is a principle of end-weight at work (Quirk et al. ibid.: 1361f): that is, longer phrases tend to appear at the end. I am going to tackle this problem in regard to deverbal nouns in grammar and discouse.

The second problem I should like to discuss in the relation of deverbal nouns to grammar and discourse is what Halliday and Hasan (1976: 277-92) call 'lexical cohesion'. I will examine some properties of deverbal

nouns which function as lexical cohesion.

2. Deverbal nouns in subject and object positions

I examined deverbal nouns which occupy subject and object positions in 10,000 words in five works of different genre. (They and their abbreviations are listed on the last page of this paper). First of all, I should like to show a table of frequency of deverbal nouns and of their occurrences in subject and object positions.

	frequency	subject position		object position	
PHW	269	63	definite 33	48	definite 23
			indefinite 30		indefinite 22
CPPH	238	44	definite 30	58	definite 29
			indefinite 14		indefinite 29
LTR	158	37	definite 22	34	definite 4
			indefinite 15		indefinite 30
RW	95	15	definite 9	27	definite 12
			indefinite 6		indefinite 15
P	53	6	definite 3	12	definite 5
			indefinite 3		indefinite 7

The following points deserve attention:

(1) From the viewpoint of genre, deverbal nouns occur more frequently in expository writings[1] than in novels and fiction.

(2) There is no particular difference in the frequency with which deverbal nouns appear in subject as opposed to object positions, although in PHW more deverbal nouns appear in the subject position, while in RW more deverbal nouns appear in the object position.

(3) The definite deverbal nouns appear more frequently in the subject position, but definite and indefinite distinctions do not make any particular difference in the object position. In LTR, on the contrary, indefinite deverbal nouns appeâr by far more frequently in the object position.

(4) Although the fact has been shown in the table, longer deverbal noun phrases with modifiers tend to appear at the end. This tendency accords with the achievement of end-weight. From the viewpoint of communicative dynamism, end position carries a high degree of information (cf. Firbas (1983); Quirk et al. (ibid.: 1401)).

The following are some examples:

(1) Examples of definite deverbal nouns in the subject position:
  (a) In this way the competition of the two families for resources was lessened.
  (PHW: 23)
  (b) But this usage soon faded out.
  (CPPT: 6)
(2) Examples of indefinite deverbal nouns in the subject position:
  (a) A modern marriage ... had been more than others.
  (RW: 6)
  (b) Color reactions on the recovered samples were positive.
  (P: 9)
(3) Examples of definite deverbal nouns in the object position:
  (a) ... they allowed the survival of early hominid remains.
  (PHW: 27)
  (b) ... identify the continuity of a political party.
  (CPPT: 2)
(4) Examples of indefinite deverbal nouns in the object position:
  (a) ... but was deriving a secret satisfaction ...
  (RW: 12)
  (b) ... possess vocal equipment similar to our own.
  (PHW: 9)

Longer deverbal noun phrases with modifiers tend to appear at the end of sentences:

(a) ... a people settled in southern Mesopotamia where they were soon to evolve the oldest civilization known to us.
(PHW: 21)
(b) This in turn implied further and sharper differentiation in the role of the sexes.
(PHW: 29)
(c) It is not easy to trace any organisational continuity between the Toryism of Bolingbroke and the Toryism of Lord Liverpool.
(CPPT: 8)

The numbers of deverbal nouns used in subject and object positions occupy less than half of the whole frequency in each work. This fact only shows that deverbal nouns are used for other functions as well. Those deverbal nouns used for other than subject and

object sequences appear mostly in prepositional phrases of which the deverval nouns are a part. It follows, therefore, that this function is very important for the clarification of the properties of deverbal nouns, although I cannot delve into this problem for the moment.

One more point I should like to draw your attention to in this connection is that deverbal nouns themselves are incomplete in meaning, requiring some elements to complete the meaning. The commonest is 'preposition+ **the+deverbal** noun+of+noun phrase'. 'Of' is the most frequentconnecting preposition, although prepositions other than 'of' occur occasionally.

The following are some examples:

(a) ... we can trace the chain of human descent back to the appearance <u>of</u> vertebrates ...
(PHW: 19)

(b) ... it has been incessantly built ... by the accumulation <u>of</u> a capital of experience and knowledge ...
(PHW: 20)

(c) ... we cannot talk at all except by subscribing to the organization and classification <u>of</u> data which the agreement decrees.
(LTR: 214)

(d) It was another factor strengthening the tendency <u>to</u> conscious inhibition and restraint ...
(PHW: 32)

(e) This suggests belief <u>in</u> continuity since the early eighteenth century.
(CPPT: 3)

3. <u>Lexical cohesion</u>

Of the various problems associated with lexical cohesion, I will discuss 'reiteration'. According to Halliday and Hasan (<u>ibid</u>.: 278), reiteration is "a phenomenon where one lexical item refers back to another, to which it is related by having a common referent". The following are examples (<u>ibid</u>.: 279-80):

There's a boy climbing the tree.

(a) The boy's going to fall if he doesn't take care. – the same word

(b) The lad's going to fall if he doesn't take care. – a synonym

(c) The child's going to fall if he doesn't take care. – a superordinate

(d) The idiot's going to fall if he doesn't take care. – a general word

Similarly, Quirk et al. (<u>ibid</u>.: 1438-42) discuss this phenomenon in terms of 'lexical linkage'.

What I am going to discuss differs from Halliday and Hasan's discussion of reiteration presumably because of the nature of deverbal nouns. In view of the properties of deverbal nouns, I want to recognise three types of reiteration: (1) 'verb - deverbal noun' reiteration, (2) 'demonstrative (the, this and such)+ deverbal noun' reiteration, (3) the function of deverbal nouns as paragraph-starters.

(1) 'Verb - deverbal noun' reiteration

(a) Why, if he considered the matter to be one of urgency, did he not as a temporary measure suspend the corn laws at once by order in council, which would be done under the Act, and I leave it to the sense of Parliament to decide, whether the suspension should be permanent, instead of introducing a bill which gradually tapered off the import duties over a period of three years?
(CPPT: 54)

(b) Languages differ not only in how they build their sentences but also in how they break down nature to secure the elements to put in those sentences. This breakdown gives units of the lexicon.
(LTR: 240)

Synonyms or near synonyms are sometimes used instead, partly to avoid monotony and partly to tone down the degree of emphasis of the verb.

(a) To separate "Upper" and "Lower" Palaeolithic is easy; the division represents the physical fact that the topmost layers of geological strata are the most recent and that, therefore, fossils and artifacts found among them are latter than those found at lower levels.
(PHW: 40)

(2) 'Demonstrative +deverbal noun' reiteration

The deverbal noun reiteration to be dealt with here does not correspond to any explicit item(s) in the preceding discourse. In this sense, the writer's interpretation of what goes before is deeply involved in the use of the deverbal noun. In other words, his or her judgment of the preceding information is reflected there.

(a) The aristocracy and the employers were not the only groups which had emerged as classes from the old hierarchical pre-industrial order. The same period saw the conversion of a substantial element of what had been 'the lower

order' into 'the working class'. This development was no doubt an inevitable long term result of urbanisation and the factory system ...
(CPPT: 15)

(b) The Sumerian language lived on for centuries in temples and scribal schools, much as Latin lived on for the learned in the muddle of vernacular cultures in Europe after the collapse of the Western classical world of Rome. The comparison is suggestive, because literacy and linguistic tradition embodies ideas and images which impose, permit and limit different ways of seeing the world ...
(PHW: 69)

Both the deverbal nouns used in the two passages above have, strictly speaking, no exact correspondence in the previous examples. But the reader has no particular difficulty finding what the deverbal nouns refer to (in (a), this development refers to the conversion ... and in (b), the comparison is between the situation of the Sumerian language and that of Latin).

(3) Deverbal nouns as paragraph-starters

The 'the/this/such+deverbal noun' pattern is often used to begin a new sentence. This is presumably because a deverbal noun is a convenient word for summarising the previous paragraph or phrase of the argument. This role of 'topic-shift' (Brown and Yule 1983: 94) is a kind of structural device which both links the new paragraph to the previous one and directs the reader's attention to the topic which follows.[2] Because of limitations of space, only two examples are given.

(a) Why this began to happen cannot exactly be explained, but the overwhelming presumption must be that the root cause was over-population in the lands from which the intruders came. Over-population is at first sight a curious notion to apply to a world whose total population in about 4000 BC has been estimated only at between eighty and ninety millions. In the next four thousand years it grew by about fifty per cent to about one hundred and thirty millions; this implies an annual increase almost imperceptible by comparison with those we take for granted. It shows both the relative slowness with which men added to their power to exploit

the natural world how much and how soon the new possibilities of civilization had already reinforced Man's propensity to multiply and prosper by comparison with prehistoric times.

Such growth was still slight by later standards because it was always based on a very fragile margin of resources and it is this fragility which justifies talk of over-population.

(PHW: 62)

(b) This fact is very significant for modern science, for it means that no individual is free to describe nature with absolute impartiality but is constrained to certain modes of interpretation even while he thinks himself most free. The person most nearly free in such respects whould be a linguist familiar with many widely different linguistic systems. As yet no linguist is in any such position. We are thus introduced to a new principle of relativity, which holds that all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated.

This rather startling conclusion is not so apparent if we compare only our modern European languages, with perhaps Latin and Greek thrown in for good measure.

(LTR: 214)

Two points are worth emphasising in this connection. One is what Chafe (1974) calls 'the notion of consciousness'. The other is the dominant frequency of 'this' over the other demonstratives such as 'the', 'that' and 'such'.

Chafe's notion of consciousness has a relation to given/new information in that given information is what the speaker assumes to be already present in the hearer's consciousness at the time of speech, while new information is what the speaker does not assume to be present. One well-known device for expressing given information is pronominalization. But pronominalization has limited uses in discourse because of its possible ambiguity and its limited numbers. What is more important, pronominalization cannot express new information, and consequently cannot serve the function of topic-shifter which contains some new information to

introduce the hearer/reader into a new realm of discourse. The proportion of given and new information must be subtle, because too much given information results in tautology, and too much new information makes a topic-shifter incomprehensible (cf. Grice 1975). Deverbal nouns can express new information as well as refer to given information while pronominalization can only do the latter. Firstly, deverbal nouns have demonstrative force with the aid of the demonstratives. Secondly, they have a greater number of kinds than pronominalization. Thirdly, they contain both given and new information.

Of the demonstratives attaching to deverbal nouns, 'this' is most frequent.[3] The following table shows the frequency of demonstratives within 10,000 words of the works examined:

	PHW	CPPT	LTR	RW	P
this	10	16	8		
the	2	10	5		
these	3	7		1	
such	4	2	2	1	
that			2		

4. Conclusion

The behaviour of deverbal nouns presents many interesting aspects in discourse as well as in grammar. However, studies in this area have not been undertaken so extensively in the past.

Placing deverbal nouns in subject and object positions is partly influenced by the definiteness and indefiniteness of deverbal nouns. Definiteness is usually manifested by means of such demonstratives as 'this/the/that/such', and indefiniteness by means of the indefinite article and the lack of the indefinite article with plurality. The fact that definite and indefinite deverbal nouns equally appear in the subject position demonstrates the different behaviour of deverbal nouns from ordinary noun phrases (cf. Johansson and Hofland (ibid.: 5-6). It seems to me that indefiniteness makes the statement of events without concreteness and serves the purpose of description in expository writings.

A certain set of deverbal nouns contribute much to cohesion in discourse by way of their reiterative and demonstrative properties. Although I have not demonstrated this fully, I assume that there are a group of deverbal nouns corresponding to the types I have set. That is, some deverbal nouns such as 'situation,

'conclusion' and 'observation' are used as paragraph-starters more commonly than others. More research is needed to endorse this statement.

Notes

* I am grateful to Dr Sheila Hones for reading and making comments on an earlier version of the paper.
1) Longacre (1983: Ch. 1) sets up four types of discourse, pointing out that considerable nominalization characterises expository discourse.
2) MacWhinney (1977: 155) says that the starting points can serve four functions. These are to designate (1) the attentional focus, (2) the perspective, (3) the agent, and (4) the given.
3) As regards the dominance of 'this', Francis (1986: 28) says: "'this' tends to convey the meaning of continuing topical relevance while 'that' tends to signal topical completion".

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Data

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Simplification of Narratives for ESL: A Discourse Analysis

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Corder (1981) argues that structural simplification is a universal linguistic competency, a special register in oral language, of all adult speakers. Widdowson (1979) distinguishes between this simplified register and the pedagogic simplification technique intended to make a target language more accessible to language learners as commonly applied to the preparation of most ESL classroom materials. Honeyfield (1977) describes two ways pedagogic materials are typically simplified: linguistic and content simplification. Linguistic simplification alters a text's lexical and structural features. Specifically, paraphrases are governed by standard vocabulary frequency lists, and syntactic processes of "de-transformation" convert complex structures into simple or compound forms. Content simplification involves either a total revision (in which the main plot is retold) or an abridgement (in which incidents of whole passages considered less important or incidental are omitted). As demonstrated in this paper, linguistic and content simplification are distinct yet interdependent processes. This study describes the simplification of O. Henry's short story "Gift of the Magi," adapted for ESL teaching by Dixson (1971), and the resulting textual differences.

While ESL material simplification is done to many different text genres, the narrative genre has been chosen as the starting point for this study because a large research base exists for textual analysis of narratives. A narrative is best defined as a set of "foregrounded" clauses relating the narrative events on the time-line and "backgrounded" clauses incidental to the narrative events off the time-line (cf. Labov, 1972; Hopper, 1979a; Hopper, 1979b; Hopper and Thompson, 1980). The framework for the analysis which follows derives from research in structure, grounding, and topical continuity of narratives. To facilitate this analysis, Labov's (1972:363) outline of a fully-formed narrative provides some of the structural reference points for this study: *Abstract*, a summary of a narrative which offers why it is being told; *Orientation*, usually free clauses placed at strategic points in a narrative to identify the time, characters, place and situation in the narrative; *Complicating action*, set of narrative clauses central to the narrative, comprised of a set narrative units; *Evaluation*, clauses which indicate the point of the narrative; *Result* or *resolution*, actual end of the story; *Coda*, clause(s) which signals the end of the story's telling and brings the reader and author back to the point at which they began.

Also used in this analysis is the set of foreground-background

distinctions established by Hopper (1979b: 216), summarized as follows:

Foreground	Background
Chronological sequencing	Chronological overlap of events
Focused subject within discrete episode	Frequent subject changes
Human topics, with high % as subject	Variety of topics
Dynamic, kinetic events	Static, descriptive situations
Foregrounded events indispensable to narrative	Backgrounded states or situations necessary for understanding motives and attitude

Before the analysis of content simplification is presented, some discussion of linguistic simplification is relevant to the more global textual considerations. A seemingly innocuous lexical simplification of the title, from "Gift of the Magi" to "The Christmas Present," alters significantly several of the textual features of the narrative. A title is the written counterpart to an *Abstract* in oral narrative. As such, it influences "the interpretation of the text which follows" (Brown and Yule, 1983). Thus, the title plays a significant role in "thematizing" the discourse; as an important part of the thematizing, or "staging," the title functions, as Clements (1979) suggests, to give relative prominence to various segments of the prose--in this case a narrative. The original's title "Gift of the Magi" contextualizes one narrative--a poignant situation between a struggling, young couple who sacrifice their most precious belongings in order to purchase gifts for each other--within the story of the "First Christmas." On the other hand, the simplified's title "The Christmas Present" sets a very different stage, giving sole attention to the poignant situation and completely eliminating the Magi story. The consequences of these title variations as well and the different stages created for their subsequent narratives is discussed in the remainder of this paper.

Analysis of the Original Version

The title, "Gift of the Magi," is the first indication regarding the Magi story's importance to the reader's interpretation of the poignant story about Della and Jim. An interim *Evaluation* provides the second indication when O. Henry inserts the following aside, "The magi brought valuable gifts, but that [answer] was not among them. This dark assertion will be illuminated later on." Finally, with the following *Coda*, O. Henry connects Della and Jim's story to the title's biblical story, thereby making the point of the narrative:

> And here I have lamely related to <u>you</u> the uneventful chronicle of two foolish children in a flat who most unwisely sacrificed for each other the greatest

> treasures of their house. But in a last word to the wise of these days let it be said that of all who give gifts these two were the wisest. Of all who give and receive gifts, such as they are wisest. Everywhere they are wisest. They are the magi.

With these words, O. Henry has reiterated the interpretive staging intended for the title's biblical story of the Three Wise Men, who offered the precious gifts to the baby Jesus.

The original O. Henry story contains several additional interesting devices for staging and grounding these two story lines. One device signals a shift in author/reader/story perspective: sometimes both author and reader are observers of events which are on the time-line of the narrative (as in [A] below); other times, the author converses with the reader in asides off the time-line, indicated with an underline (as in [B]).

[A] One dollar and eighty-seven cents. That was all. And sixty cents of it was in pennies...Three times Della counted it...One dollar and eighty-seven cents. And the next day would be Christmas. There was clearly nothing to do but flop down on the shabby little couch and bawl. So Della did it.

The lines contained in [A] are the opening, the *Orientation*, of the original story. As the story begins, O. Henry and the reader observe Della in despair over her meager sum for her husband's Christmas gift. But just a few lines later, O. Henry addresses the reader directly.

[B] But whenever Mr. James Dillingham Young came home and reached his flat above he was called "Jim" and greatly hugged by Mrs. James Dillingham Young, already introduced to <u>you</u> as Della.

It is a strategy he uses in several places in the text, also shown in the *Coda* quoted above and in the lines quoted in [C] below.

O. Henry also manipulates the grounding through tense contrasts which function to organize a narrative (Fleischman, 1985). Labov (1972) posits that "narrative clauses are those which are temporally ordered" and whose verbs are usually in past tense. These clauses are foregrounded as the important material, the backbone of the narrative. "Non-narrative" clauses are not temporally sequenced events, i.e. not on the time line. Therefore the material is backgrounded, considered subordinate to the main narrative, and signalled by a tense shift usually to the present tense, marked below with // (Fleischman, 1985). Each shift back into past tense coincides with a new "narrative unit," a sequence of clauses that forms a development of the plot within the *Complicating action* (Fox, 1987), marked with ##. This kind of tense shift is illustrated in the following three passages, the first of which continues from the end of [A] above.

[C] So Della DID it. // Which INSTIGATES the moral reflection that life IS made up of sobs, sniffles, and smiles, with sniffles predominating. While the mistress of the home IS gradually subsiding from the first stage to the second, <u>TAKE</u> a look at the home...Which IS all very good. ## Della FINISHED her cry and ATTENDED her cheeks with the powder rag.

[D] She GOT out her curling irons and LIGHTED the gas and WENT to

work repairing the ravages made by generosity added to love. // Which IS always a tremendous task, dear friends--mammoth task. ## Within forty minutes her head WAS covered with tiny, close-lying curls...

[E] He ENFOLDED his Della. // For ten seconds LET us regard with discreet scrutiny some inconsequential object in the other direction. Eight dollars a week or a million a year-what IS the difference?...## Jim DREW a package from his overcoat pocket and THREW it upon the table.

[F] Oh, and the next two hours TRIPPED by on rosy wings. // FORGET the hashed metaphor. ## She WAS ransacking the stores for Jim's present.

O. Henry is consistent in his use of tense: the story of the sacrifices of this couple for each other is told in the past; the conversation with the reader about the story and characters in the present.

As Hopper's criteria (provided on the second page of this paper) for foregrounded material would suggest, narrative clauses should contain human topics as agent subjects. Indeed, of the eighty-nine (of the 141 clauses) foregrounded narrative clauses, 46% of them have a main character as the agent subject. Interestingly, when the grounding of the text shifts, the character's name (rather than pronoun) signals a return to the main narrative, which functions "to signal the hierarchical structure of the text" (Fox, 1987:168). This is observable in [C] above and in the following excerpt as well.

[G] ...// With that chain on his watch Jim might be properly anxious about the time in any company. Grand as the watch was, he sometimes looked at it on the sly on account of the old leather strap that he used in place of a chain. ## When **Della** reached home her intoxication gave way a little to prudence and reason.

Thus, a character's name signals the beginning of each narrative unit; while anaphoric pronouns occur most frequently within narrative units.

Nearly 37% of the clauses are non-narrative, i.e. backgrounded, material. The subjects and topics in this material vary and frequently co-occur with static verbs, as highlighted below.

[H] Rapidly she pulled down her hair and let it fall to its full length. // Now, there **were two possessions** of the James Dillingham Youngs in which they both took a mighty pride. **One was** Jim's gold watch that had been his father's and his grandfather's. **The other was** Della's hair...## So now Della's beautiful hair fell about her, rippling and shining like a cascade of brown waters.

[I] The door opened and Jim stepped in and closed it. // **He looked** thin and very serious. Poor fellow, **he was** only twenty-two--and to be burdened with a family! **He needed** a new overcoat and **he was** without gloves. ## Jim stopped inside the door, as immovable as a setter at the scent of quail.

In [H] and [I], these non-narrative clauses are subordinate to the

narrative and relate descriptive details concerning the characters' lives and feelings or allows the author to converse with the reader.

Analysis of Simplified Version

As stated before the analysis of the original, the title of each version grounds its respective subsequent narrative. The simplification of the title suggests a presumption that ESL readers may be unfamiliar with the biblical allusion, but generally familiar with Christmas and America's practice of present-giving. On the other hand, this allusion was probably familiar to O. Henry's original audience, so he could assume it to be shared as prior knowledge. The end result of the different title is that what was foregrounded in the original becomes the sole content of the simplified narrative; it abstracts a different story about a Christmas present. Consequently, the narrative acquires a different structure: the original's *Coda* and *Evaluation* are eliminated. The story simply ends when Jim asks Della to cook dinner, leaving the reader to infer the point of the story.

Much of the *Orientation* in the simplified appears in the opening few lines. However, the information presented is altered or distilled. First Della and her crying and then counting her money are thematized in the first lines:

> **Della was crying.** As she cried she counted her money. One dollar and eighty-seven cents. That was all. And sixty cents of it was in pennies. Pennies which Della had saved one at a time. Three times Della counted it. One dollar and eighty-seven cents. And the next day would be Christmas.

Two sentences later, Jim is introduced into the narrative as her husband in the following appositive, "Tomorrow would be Christmas day and she had only one dollar and eighty-seven cents with which to buy Jim, her husband, a present." Eliminated is the additional *Orientation* provided in the original--the discussion of the name card on the mailbox (Mr. James Dillingham Young) and how its changing appearance reflected Della and Jim's changing prosperity. Without the original's complete *Orientation*, the full implication of Della's opening agony is unavailable to readers of the simplified.

Further grounding changes are evident. There is no tense-shifting, except in the second paragraph: "She HAD been saving every penny she could for months with this result. Twenty dollars a week DOESN'T go far. Expenses HAD been greater than she EXPECTED. They always ARE." Because of the staging created by the simplified's title, only clauses that are in the past in the original, whether on the time-line or not, are retained. All but two of the backgrounded clauses which are also in the present have been eliminated. I would argue that because these retained shifts occur off the time-line entirely, they do not affect the grounding as the tense shifts do in the original.

The fact that most backgrounded clauses are eliminated leads to the logical conclusion that the simplified narrative should be nearly 63% of the original in length, or consisting of 89 narrative clauses. In fact, the simplified version contains 106. To account

for the length of the simplified, it is necessary to examine the de-transformation and topicalization that has occurred as both processes converge in the simplified to create a narrative whose sentences are arranged in what Lautamatti calls a *parallel topical progression, i.e.* parallel staging (cited in Witte, 1983). Below are some pairs of sentences which illustrate de-transformation (converting complex structures into simple or compound forms). The first sentence in each pair is the original. In [J], the infinitive phrase has been de-transformed into a full sentence and the passive eliminated with the substitution of the wordier independent clause.

[J] "Poor fellow, he was only twenty-two--and **to be burdened with** a family!"
"Poor fellow, he was only twenty-two, and **he had all the problems of having** a family."

In [K], the original's adverbial clause becomes a main clause and its main clause becomes an adjective clause within a prepositional phrase.

[K] "Where she stopped the sign read..."
"... [she] finally stopped at a shop with a sign which read..."

In [L], a subordinate clause becomes a coordinate clause.

[L] "Once she faltered for a minute and stood still **while a tear or two splashed on the worn red carpet.**"
"She hesitated for a moment **and tears appeared in her eyes.**"

In [M], nominalizations become adjective complements when the structures are de-transformed into main clauses.

[M] "When Della reached home her **intoxication gave way a little to prudence and reason.**"
"When Della arrived home **she was less excited**, and gradually **she became more reasonable.**

As these examples demonstrate, because each de-transformation creates a coordinate structure, the reader has no clues as to which information is important to the narrative event. De-transformation alters the narrative structure or the grounding hierarchy so that all clauses have the same topical depth.

In sentences where topicalization occurs (process which makes the sentence-initial element, grammatical subject and sentence topic all the same), the sentence is changed into a (human) agent-action sentence. The following pairs of sentences illustrate this result. The first sentence in each pair is the original.

[N] "She got out her curling irons and lighted the gas and went to work repairing the ravages made by generosity added to love... Within forty minutes her head was covered with tiny, close-lying curls that made her look wonderfully like a truant schoolboy."
"She began to comb and arrange her hair, now cut very short, in the best way she could. She took her curling iron and began to curl her hair carefully."

[O] "On went her old brown jacket; on went her old brown hat."
"She put on her old brown coat. She put on her old brown hat."

[P] "Down rippled the brown cascade."

"Della removed her had and let fall her beautiful hair."
In order to topicalize these elements, the syntax is normalized to S-V-O as in [O] above and [Q] and [R] below.

[Q] "Many a happy hour she had spent planning for something nice for him."
"She had spent many happy hours planning for something nice for him..."

[R] "Out of his trance Jim seemed quickly to wake."
"Jim seemed suddenly to wake up."

The outcome of this topicalization is that the incidence of sentences with (human) agent subjects and action verbs increases. This further serves to alter the grounding of the original in that it places many more actions on the time-line in contrast to their backgrounded place in the original.

Additional changes are the result of the deletion of the original backgrounded material in the simplified version. In some instances the material is partially deleted creating new structures. The small number of passive constructions is reduced by half and original fragments remaining after deletion are combined with main clauses as in [S]. Sometimes, wholly different syntactic structures are created to fill the gaps left by the deletions, as in [T] below.

[S] "Many a happy hour she had spent planning for something nice for him. Something fine and rare and sterling - something just a little bit near to being worthy of the honour of being owned by Jim."
"She had spent many happy hours planning for something nice for him, something fine and rare, something worthy of the honor of being owned by Jim."

[T] "The other was Della's hair. // Had the Queen of Sheba lived in the flat across the airshaft, Della would have let her hair hang out the window some day to dry just to depreciate Her Majesty's jewels and gifts....// So now Della's beautiful hair fell about her, rippling and shining like a cascade of brown waters."
"The other was Della's beautiful hair, which now fell about her shoulders like a beautiful cascade of water."

The consequence to the narrative is often that the simplified does not provide insights into the characters' motives or the author's conversation with the reader as in the original.

Finally, the lexical changes merit some consideration because of their role in altering the original text. As stated at the beginning of this paper, lexical simplification is usually based on vocabulary frequency lists. The most common example of this occurs when a general (i.e. more frequent) word replaces a specific (i.e. less frequent) word as in the following samples: 'bawl' > 'cry', 'calculated' > 'expected', 'leaped' > 'jumped', 'whirled' > 'turned', 'fluttered out' > 'flew out', 'peculiar expression' > 'strange expression', and 'He **enfolded** his Della' > 'He **kissed** Della'. Although seemingly inconsequential changes, such simplification conjures different images. To illustrate, 'bawl' suggests more ferocity than does "cry.' Thus, the image of Della crying at the beginning of the simplified does not necessarily clue

the reader in to the depth of her momentary despair.

In other cases of lexical simplification, a colloquial form is either replaced with a standard form or simply eliminated: 'yer hat' > 'your hat', 'Give it to me quick' > 'Give it to me quickly', 'awfully fast' > 'very fast', 'I'm me without my hair, ain't I?' > 'I'm the same person without my hair.' and 'They're' >' 'They are'. In still other cases of simplification, more modern words replace outdated ones, as illustrated in the following: "fob chain' > 'watch chain,' 'pier-glass' > 'mirror,' and 'Coney Island chorus girl' > 'a child', 'a dandy' > 'a fine one'. The outcome of these last two cases of simplification is to dilute the original's subtle characterization in the narrative and to eliminate more of the *Orientation* which places the narrative in a particular time.

Conclusions

As has been demonstrated in this paper, what starts as a simplification of one story's title has complex implications for the resulting narrative. The simplification eliminates text which originally stages one story within another story and which defines the author-reader relationship viz-a-viz the narrative. Simplification also restricts the narrative structure to only those narrative units within the *Complicating action*. Also, because of syntactic and lexical simplification, all clauses are presented as foregrounded narrative clauses. Thus, although this study is intended as a preliminary investigation of simplification, it offers strong substantiation for Honeyfield's claim that "simplification produces texts which present all information as if of equal value, reduces cohesion, and obscures the schema" [emphasis added] (1977). This final claim cannot be overstated.

As previously stated, simplification of pedagogical materials is intended to make them more accessible to learners. Underlying this is the theory that if material is not accessible it is not learnable. Accordingly, the simplified narrative analyzed in this paper is presumably more accessible and therefore more conducive to language learning. However, Pica (1985) questions the connection between simplicity and learnability, arguing that "the practice of building ESL [materials] on gradations of linguistic complexity is unsupportable." Similarly, the findings of this study do not support the practice of simplifying narratives in the manner described in this analysis.

Research in cross-cultural narrative analysis has established the universality of "narrative" as a discourse genre; however, it has also suggested that the schema (mental representation) for a "narrative" is culturally defined. In other words, while every culture recognizes "narrative" as a distinct genre, the schemata are different. Therefore, since the goal in ESL teaching is to make the target language accessible, it must also make accessible the schema peculiar to English narrative. The simplified narrative in this study presents a homogenized schema of English narrative which does not contribute to the learner's building of a narrative schema that can be accessed during other narrative reading. On the contrary, it

encourages reading word-for-word or sentence-by-sentence and ignores the schema necessary for interpretation. Further investigation of simplification of reading material is needed to explore the connections between simplicity, readability, and accessibility/ learnability. This study offers suggestive evidence that simplicity as the result of simplification may serve a learner negatively.

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FOCUS ON LEAR'S VERBAL EXPRESSIONS: A REFLECTION OF HIS DRAMATIC DEVELOPMENT

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1. Introduction

Various and controversial views have been proposed regarding Lear's 'active'/'passive' role. A.C. Bradley notes the "peculiar position" of the tragic hero in King Lear, which in one important respect differs from that of the hero in Hamlet, Othello, or Macbeth. In these tragedies the hero's "fatal weakness, error, wrong-doing continues almost to the end. It is otherwise with King Lear. When the conclusion arrives the old King has for a long while been passive...almost wholly...a sufferer, hardly at all...an agent (p. 224). ...The truth is, that after the First Act, ... Lear...hardly initiates action at all" (p. 51). Corroborating Bradley's contention, above, J.W.R. Meadowcroft writes that Lear turns "very passive" early in the play, that "From the end of the first scene, he is a character who is more acted upon than acting" (p. 85). William R. Elton, however, sees a very active Lear in III.vi in the role of "stage manager" conducting the great trial scene of "reason in madness" (p. 235). Lear's energetic activity in Act III is discussed by S.L. Goldberg:

> Lear's world in these scenes is exactly as dynamic and strife-torn as he is himself. It is magnificent in its total activeness.... [Lear's] impulse to act energetically ... can of itself only issue in something like the mock trial ... one 'true need' of humanity - for action and 'justice' - is represented in Lear (pp. 117-118).

Elton further describes the dramatic change that takes place in Lear in his last two scenes, where, in IV.vii there is a "momentary decline to passivity ... a brief interlude after lengthy madness," following which "the defiant Prometheus and Lear - Agonistes of the previous passages come back to us in the final scene" (p. 238) with "undiminished force and intensified reaction" (p. 253).

True, Lear suffers, even unto the point of madness. Yet, suffering does not necessarily breed despondency or lack of action, not, one might surmise, in a character such as the Lear we met in ACT ONE. Action may be both internal and external. It can be inmost and dramatically vital in the forging of one's character. ACT ONE portrays a highly active Lear by virtue of his kingly power. His activity is wholly external. He commands, divides his kingdom, expels Kent, banishes and disowns Cordelia, curses. In II.iv, maddened by his fierce confrontation with his elder daughters, he rushes out into the storm. And then Shakespeare gives us the raging storm in nature to reflect the tumult in Lear himself "in his little world of man" (III.i.10). One images

the other - the image of the microcosm-macrocosm relationship. And through this tempest, both outer and inner ("the tempest in my mind", III.iv.12), through the pain of his suffering, Lear undergoes changes. He proceeds towards enlightenment, to a true perception of the human condition. Purged of his initial blindness and folly, he learns humility. He learns to pray. This, too, is action. His questionings and searchings are activities of the highest human capacity, as are also, in the face of dire adversity, his inner conflicts as he battles for patience, endurance and self-control. So, too, are his criticisms of corrupt society - all bearing a catalytic effect on the process of his re-creation. His awareness broadens, his insight deepens. He acquires an understanding that leads to his affirmation of his true identity and of the supreme in human values - kindness and love, selfless and unconditioned. Indeed, he is the sufferer, but ultimately he is also the actor, the creator, the self-creator, grown spiritually to magnanimity.

Applying the linguistic methodology proposed in this paper as a tool to aid in interpreting the image enacted by Lear, we shall follow his dramatic movement, its rise and fall, and attempt to examine the stylistic means in terms of verbal expressions by which Shakespeare conveys his 'activity' or his 'passivity'. In other words, where is Lear's semantic role that of an agentive ('active') and where is it that of a non-agentive ('passive') participant in the action described by the verb in the proposition? Or, how do Lear's verbal expressions mirror his changing images? Since we have not, as yet, in our literature a consensus regarding a unified linguistic terminology, or a unified and defined list of "cases" (See, esp., Lyons, 1977, p. xi; Fillmore, 1977, p. 71; Comrie, 1976, p. 11), we shall, for the purpose of this study, confine Lear's participant role to two types: Agentive (A) and Non-Agentive (NA). The latter will embody the semantic role of Patient and Experiencer.

II. A Linguistic Methodology

The only way we can talk about Lear as Agent or as Non-Agent in the linguistic sense is if he figures as a participant in the semantics of the proposition. We shall thus consider only those of Lear's speeches in which he refers to himself as Agent of the action described by the verbal expression in the clause, or as Patient or Experiencer, i.e. Non-Agent.

The semantic role of Agent will be defined in general terms as that of the participant who intentionally and voluntarily initiates or causes the action described by a non-stative (action) verb in the clause. We shall define an action verb in general terms as "the main verb in the answer to the question of the form 'What did A do?'" (Kenny, p. 159) The semantic role of Patient will be defined as that of the participant who is the recipient of the action described by such a verb. The semantic role of Experiencer will be defined as that of the subject of a stative (non-action) verb - a verb denoting a mental (psychic) state or a relation - ("I can be patient"; II.iv.227), "I am cut to th' brains" (IV.vi.190-191), and, in traditional terms, as that of the

entity in the 'Dative' case ("Your sisters have done me wrong"; IV.vii.73-74).

We shall draw two parallel lines of proof to test Bradley's contention, above. One line of proof will be to look at all of Lear's distinct Agentive (A) speech-acts: imperatives (I), curses (C), entreaties (E), oaths (O) and threats (Th). (See, esp., Austin, 1962; Searle, 1970; Lyons, 1977, pp. 730-751). There will be more such Agentive (A) speech acts at the beginning and fewer as the play develops, according to Bradley. The second line of proof will be to see where Lear is an Agentive (A) or a Non-Agentive (NA) participant when he makes reference to himself, or where he is not mentioned but is understood (inferred) in the grammatical sense. We shall thus use Agentive (A) in two different senses:

1. Lear's explicit Agentive (A) speech acts - imperatives (I), entreaties (E), curses (C), oaths (O) and threats (Th).
2. Other verbal expressions in which the verb in the main clause of the utterance will determine who is governing the action described by that verb and its complements. These verbal expressions will include imperatives (I) and entreaties (E) where Lear is referring to himself, but is not necessarily in the Agentive (A) role. They will be marked as Agentive (A) in describing the role of the participant who utters this speech act and as Non-Agentive (NA) in describing the role of the participant who in this same speech act is not the Agent, but the Patient or Experiencer. In the (NA) category these will be marked (I_2) and (E_2) respectively.

A. Examples of the Two Lines of Proof:

Line of Proof 1. (A):

a. "Give me the map there." (I.i.35) (A) (I)
b. "I have sworn." (I.i.244) (A) (O)
c. "Create her child of spleen." (I.iv.276-7) (A) (C)
d. "Thou shalt, I warrant thee." (I.iv.304) (A) (Th)
e. "O let me not be mad ... !" (I.v.43) (A) (E)

Line of Proof 2. (A) or (NA):

a. "Give me the map there." (I.i.35) (NA) (I_2)
b. "I did her wrong." (I.v.23) (A)
c. "Oh, let me not be mad... !" (I.v.43) (NA) (E_2)
d. "She hath abated me of half my train;" (II.iv.155) (NA)
e. "I will arraign them straight." (III.vi.20) (A)
f. "I might have saved her." (V.iii.271) (NA)

B. Examples of selected types of Lear's verbal expressions. Let us bear in mind that it is hardly characteristic of language to make absolute clear-cut distinctions. There may be discrepancies, "leakages" (Sapir, p. 38). We must constantly be aware of the verb (+ complements) within its dramatic context, "look at the language as a whole" (Jespersen, p. 51).

1) Performatives/Illocutionary Speech Acts (A)

a. "We make thee lady." (I.i.65)
b. "I do invest you...with my power," (I.i.129)
c. "I pardon that man's life." (IV.vi.108)

2) "LET" (me, us, etc.) constructions, considered as

imperatives (I) or entreaties (E): (A). Some are also (NA), of Line of Proof 2, where Lear refers to himself but is not the Agent (I_2 or E_2) (See Quirk, et al., pp. 403ff.; Doran, 1976, p. 94).

a. "Oh, let me not be mad, sweet heaven!" (I.v.43) (E) (E_2)
b. "Then let them anatomize Regan;" (III.vi.74) (I)
c. "Let me have surgeons." (IV.vi.190) (I), (I_2)

3) Imperatives where the verb is omitted but understood, (A)
a. "Peace, Kent!" [Hold your peacel Be quiet!] (I.i.120)
b. "In, boy;" [Go/Get] (III.iv.26)

4) Curses where the verb is omitted but understood. (A)
a. "Blasts and fogs [be] upon thee!" (I.iv.293)
b. "A plague [be] upon you, murderers...!" (V.iii.270)

5) Deletions of pronouns and other references to Lear will be inferred. (A) or (NA)
a. "The bow is bent and drawn [by me] (I.i.142) (A)
b. "[I] Pray you, undo this [my] button." (V.iii.310) (A),(NA)

6) Unreal, conditional, or imaginary constructions. (NA)
a. "Had I your tongues and eyes, I'd use them so That heaven's vault should crackl" (V.iii.259-260)
b. "I should e'en die with pity, To see another thus." (IV.vii.53-54)
c. "I might have saved her." (V.iii.271)

7) Lear's references to the universal "we" will not be considered:
a. "When we are born, we cry that we are come To this great stage of fools." (IV.vi.180-181)

C. Our Counting Scheme

1) A verbal expression (verb, verb + complement: modals, subordinate clauses, etc.) will be given a value (count) of one when it constitutes a complete, independent speech act or idea in its dramatic context.
a. "We shall express our ... purpose." (I.i.34) (A) value of one
b. ".... the tempest in my mind Doth from my senses take all feelings else Save what beats there." (III.iv.12-14) (NA) value of one

This also includes
a. A one-word imperative, each counted separately when repeated in the same proposition:
"And when I have stol'n upon these sons-in-law, Then kill, kill, kill, kill, kill, kill!" (IV.vi.184-185) (A) value of six
b. "Prithee" (I pray you), "Pray," "Pray you," followed by an infinitive:
"Prithee, go in thyself;" (III.iv.,23) (A), value of one
"Pray you, now forget" (IV.vii.84) (A), value of one

2) "GO" and "COME" and the infinitive that follows will be counted separately:
a. "Go you, call/hither my Fool." (I.iv.73-4) (A) (A) value of two

b. "Come, bring us to this hovel." (III.ii.78) (A) (A).
value of two

3) Exceptions:

a. "But yet thou art my flesh, my blood, my daughter; [1]
Or rather [thou art] a disease that's in my flesh,
Which I must needs call mine." [2]
(II.iv.218-220) (NA) (NA)
value of two

The deleted "thou art" is inferred, and the whole is given two values since two different ideas are conveyed here.

III. Linguistic Results and Literary Analysis - A Compatibility

The results obtained in this paper present a subtle and illuminating picture of Lear's dramatic development and mirror his changing images. We find a high percentage of Lear's Agentive (A) speech acts in I.i (77% of the total number of his verbal expressions when referring to himself), when in pomp, ceremony and imperious voice he conducts his first trial on his daughters - the love-test, divides his kingdom giving up power and rule to Goneril and Regan, banishes Kent and disowns Cordelia. This percentage drops sharply in his second appearance (I.iv; 53%), where at Goneril's he is shocked into the realization that his authority and commands are no longer honored. His amazement, then, at the rude "abatement of kindness" (58) to him is so overwhelming that he questions his own identity. "Does any here know me?" (219), "Who is it that can tell me who I am?" (223). It drops further in I.v (46%), where the fool chides him for his folly, and Lear admits, "I did her [Cordelia] wrong" (24). It is a scene of respite from his passionate anger and violent curses in I.iv. A gradual rise in Lear's Agentivity (A) begins when, at Regan's, he is confronted by Regan and Goneril in the "bargain" scene (II.iv; 50%) where he battles for patience and sanity to overcome their brazen irreverence and "sharp-tooth'd unkindness" (131) and from which he rushes out into the vehemence of the tumultuous storm raging without - image of that within him. The percentage of his Agentive (A) verbal expressions mounts in the climactic third act (III.ii; 59%, III.iv; 66%), reaching its peak in his second trial on his daughters - the mock-trial (III.vi; 88%). We shall see that Lear's active participant role in III.vi, in particular, evidences a weighty contradiction to Bradley's thesis, above, that "after the First Act, ...Lear suffers but hardly initiates action at all" (p. 51).

III.vi focuses on Lear's unswerving intent then and there to delve into the heart of the matter - to discover the roots, the cause of evil. Lear has by now experienced a new awareness: of the bestiality of filial ingratitude, the inconsistency of authority, the wretched condition of others than himself. He has learned compassion, and has questioned the profundity of the nature of Nature and of Man (III.iv). Now he would fathom the very depths of evil, seated assuredly there, within the heart of man, and even within that of his own flesh and blood, his daughters. Adamant in his intention, "It shall be done; I will arraign them straight." (III.vi.20), he refuses any offer of relief until this trial on those "she-foxes" (22) is consummated, and orders:

Lear. Arraign her first; 'tis Goneril. I here take my/oath before this honourable assembly, she kicked the poor/king her father. (III.vi.45-47).

Spurring to action, he turns attention to Regan, "whose warp'd looks proclaim/what store her heart is made on" (51-52). She is to be tried next, and we hear his solemn command:

Lear. Then let them anatomize Regan; see what/breeds about her heart. Is there any cause in nature/that makes these hard hearts? (III.vi.74-76. My italics)

Now (III.vi), all of Lear's energy, his whole being, is bent on resolving this universal question - evil. Wherefrom? Why? This is at the heart of the play, its very core. It converges at the crucial point of the father-child relationship echoed in Edgar's "He childed as I father'd" (III.vi.108) and is to be reiterated in Lear's last penetrating questioning, before his death, of the injustice of Cordelia's death (V.iii.307-308).

Of the total number of Lear's verbal expressions in III.vi (25), 88% (22) are Agentive (A) speech acts. Most of these (64%) are curt commands directing the immediate enactment of the trial. Lear is here the sole initiator and conductor of the action of which he is, though turned mad, in full control, managing and assigning roles to those who would sit in judgement. Here we have the highest percentage of Lear's straight, clear-cut imperatives in the play. There is no reference to himself. There is no invocation of outside powers on his behalf. Thus, he is not, in our terms, the affected participant, not the Patient or Experiencer, but wholly the Agent, his command unchallenged as in no other point in the play.

Contrary to his first trial on his daughters in I.i, (77% A), in III.vi (88% A) there is no dispersion of interests. All is action directed to one focal point, thus so dramatically compact and poignant.

When Lear, mad, next appears, in IV.vi, he imagines he is chief magistrate in a trial (his third) sitting in judgement on man, divulging the dark secrets of his weaknesses and failures and those of society as a whole, himself a tortured figure in it. He is critic, "justicer," preacher here, seeing himself no longer distinct from, but affiliated with humanity at large ("we came crying hither ..." (176-181)). Lear has now reached the acme of pain, both physical and mental, so acute, he cries out for surgeons, for "I am cut to th' brains" (190-191).

The drop in the percentage of Lear's Agentive (A) verbal expressions in IV.vi (63%) from that in his preceding appearance in III.vi (88%) is a dramatic inevitability. We are to be conducted to the peace and harmony of the next - the reconciliation scene (IV.vii) where we are to hear that "the great rage... is kill'd in him;" (78-79) - an affirmation in keeping with Lear's call for "surgeons" (IV.vi.190-191).

Lear's return to sanity in IV.vii is a slow and painful emergence from a shattering experience where suffering and pain had reigned supreme, where enlightenment had come through searing flashes, like lightning in a storm. Now he awakens to the healing sound of music and to the gentle voice of Cordelia. It is a quiet scene. Recognition and reconciliation are enveloped in a sublime harmony where no jarring note is heard. The language is simple,

unadorned. Absent completely is the imperious voice of the Lear governed by vanity, folly, helpless fury and madness. He is humble in his plea for forgiveness, in acknowledgement of his weakness, in his recognition of the love of his daughter, of his own true identity - as man, as father. No longer does he speak of himself as king.

Lear's (A) role here (IV.vii) is, in comparison, almost negligible (24%). Here is the lowest percentage of imperatives in the play (3%). His expressions of entreaty (7), now in total humility, constitute the highest percentage of entreaties in the play (19%). His (Non-Agentive (NA) verbal expressions (76%) describe Lear's participant role as almost wholly that of the Patient, the Experiencer. We hear the burning pangs of a new awakening: "You do me wrong to take me out o' th' grave;/Thou art a soul in bliss; but I am bound/Upon a wheel of fire, that mine own tears/Do scald like molten lead" (45-48). His utterances here abound in verbs of cognition and the senses: "I know;" (49), "I am mightily abused" (53), "I feel" (56), "I know not what to say" (54), "I fear" (63), "I am doubtful" (65), "I am mainly ignorant" (65), "as I am a man, I think this lady/To be my child Cordelia" (69-70. My italics). And, in conclusion, "I am old and foolish" (85) -- Lear's humble testimony of self-recognition, self- knowledge.

In his next, and last, appearance (V.iii), there is a corresponding dramatic ascent in the percentage of Lear's Agentive (A) verbal utterances (62%) when we are given, before his death, a last glimpse of the vigorous spirit of the old Lear, when from the pinnacle of bliss in his reunion with Cordelia he is plunged into the fathomless depths of grief when she is hanged. His verbal behavior then fluctuates, ranging from a heart-broken outcry to those about him in passionate accusation (258-60, 270-71), to a helpless plea to his Cordelia to "stay a little" (272); from a tender eulogizing upon the beauty of her character (273-74) to that pathetic declaration and assertion: "I kill'd the slave that was a-hanging thee... Did I not, fellow?" (275-77); from an anguished questioning of the injustice of Cordelia's death (307-308) to a grief-laden resignation: "Thoul't come no more,/Never, never, never, never, never!" (308-309). And in dying, there is that last flicker of joy, of hope, when he supposes her alive and utters his last command: "Look at her, - look, - her lips, - /Look there! - look there!" [Dies] (311-12).

With the rise in Lear's Agentive (A) role in V.iii (62% (A) verbal expressions as against 24% in IV.vii), there is a corresponding rise in the percentage of his imperatives (24% as against 3% in IV.vii). We also note a decline in entreaties in V.iii (6% as against 19% in IV.vii), an effect occurring almost throughout in contrast with the rise in Agentive (A) verbal utterances as a whole and in imperatives (See Graph, below).

IV. Conclusion

Part of the results obtained in this study confirm our preliminary hypothesis (p. 3, above), that, following Bradley, there will be more explicit Agentive (A) speech acts (imperatives, curses, entreaties, oaths and threats - our Line of Proof 1) at the

beginning of the play, ACT ONE, and fewer as the play develops (ACTS TWO-FIVE). The resulting ratio is 48%/40% (See Table 2, below). However, Bradley's contention (p. 1, above) that after the First Act, "... Lear suffers but hardly initiates action at all," is refuted by the results obtained when examining all the types of Lear's verbal expressions (Lines of Proof 1 and 2) in the ten scenes in which he participates verbally in reference to himself. (See Table 1 and Graph, below). The marked changes found in the mode of Lear's verbal behavior mirror the changes he undergoes as he progresses from scene to scene in his dramatic development.

Graph 1 shows the sharp drop in lear's Agentive (A) verbal expressions (AVE) from the first trial scene, the love-test, in I.i (77%) to I.v (46%), when, following his bewilderment and agitation experienced at Goneril's in I.iv (53%), he prepares to leave her for Regan. From this point (I.v), we proceed to trace the gradual rise occurring in the "bargain" scene in II.iv (50%), and in the turbulent storm scenes III.ii (59%) and III.iv (66%), ascending to a climax in his second trial, centered on the evil of his elder daughters, in III.vi (88%). The percentage of Lear's Agentive (A) verbal expressions declines in his third trial, its canvas expanded now to include corrupt man and society (IV.vi; 63%). Lear's Agentive (A) role is at its lowest point in the reconciliation scene, its tone dominated by humility (IV.vii; 24%). From here there is again a dramatic rise in V.iii (62%) when, in parting, we view again, but now so briefly, the greatness of spirit of the old, but regenerated, Lear.

Consider, for example, Lear's rash banishment of Cordelia at the beginning of the play,

Lear. Therefore be gone
Without our grace, our love, our benison. (I.i. 263-264)

and compare this with his humble offering of blessing to her at the end:

Lear. When thou dost ask me blessing, I'll kneel down
And ask of thee forgiveness. (V.iii.10-11)

The change in Lear's use of language here accords significantly with his change of image: sophisticated, estranged, "borrowed," in the earlier utterance; simple, native, down-to-earth in the latter one; the regal, distant "our" in the former, the common, intimate simple "me", "I" in the latter. We recall, now, Lear's use of the first person plural ("we") when in regal and pompous reference to himself (I.i). In IV.vi he employs the same, but now it is to associate himself with common humanity. In the reconciliation scene (IV.vii) we hear his exclusive use of the first person singular (except for the one "let's", l. 55) in reference to himself - now as man, as father. The recurrent "we" in V.iii embraces the ultimate Lear/Cordelia I/you dialogue - "We two alone will sing like birds i' th' cage.... So we'll live,/And pray, and sing," (V.iii. 9-12). Here, too, is a reflection of the change Lear has undergone since that dramatic issuance into the tyranny of the storm (II.iv) and into that long, tortuous road of affliction - a road from which he emerges spiritually purged, magnanimous.

Let us recapitulate, in conclusion, a striking instance of the dramatic device studied in this paper whereby Lear's verbal

expressions when in reference to himself describe his semantic role and mirror a correspondent change of image. Note the occurrence of the high percentage of Lear's Agentive (A) verbal expressions in I.i when in angered vanity, arrogance and false pride he banishes Cordelia - "a stranger to my heart and me. .../.... my sometime daughter" (I.i. 114-118; 77% A/23% NA; my italics), and juxtapose this with its almost direct opposite in IV.vii when, restored to sanity and having achieved self-knowledge and understanding, he is reconciled and humbly begs forgiveness of - "my child Cordelia" (IV.vii.70; 24% A/76% NA; my italics). This we suggest as an example of the results obtained in this study which help in illuminating an additional aspect of Shakespeare's artistry where stylistics and linguistics merge to serve in the creation of character in the monumental tragedy of King Lear.

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Additional Note:

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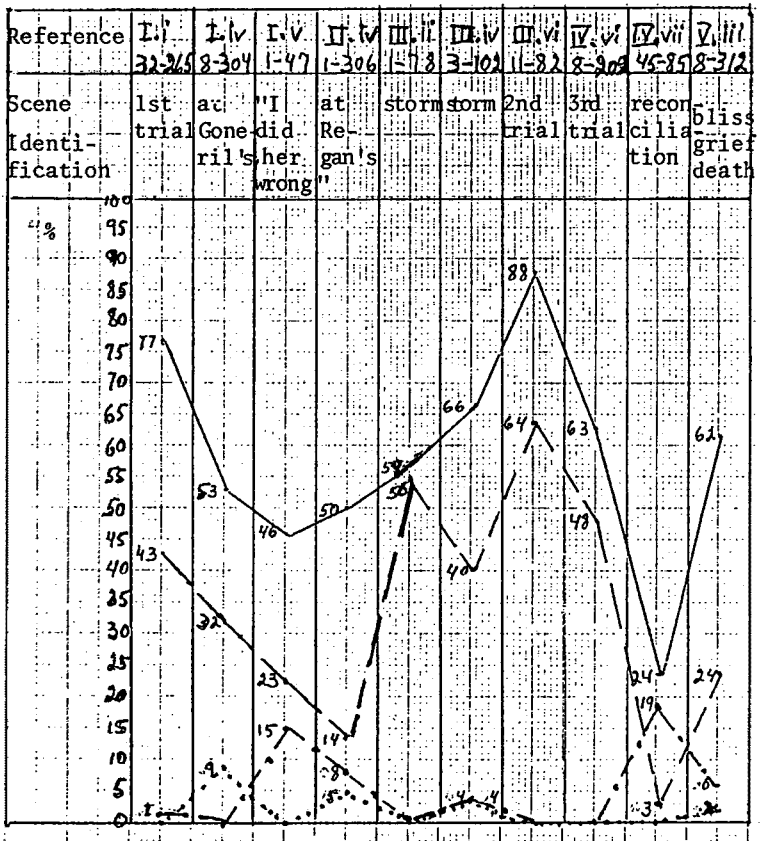

Graph 1. Percentage of Lear's Agentive (A) Verbal Expressions (VE), Imperatives, Entreaties and Curses in relation to the total number of his verbal expressions (TVE) -- (A) and (NA) in each scene.

Key: ———————— % of (A) verbal expressions
— — — — — — % of Imperatives (I)
— . — . — . — . % of Entreaties (E)
. . . . . % of Curses (C)

References = Act/scene/lines (I.i 32-265), etc., where Lear is a participant. VE = where Lear refers to himself, or where references to himself are inferred.

Ref. to Lear's II.	Scene Identification	(A) VE	(NA) VE	T VE	% (A)	% (NA)	I	% I	E	% E	C	% C
I.i 32-265	1st trial	59	18	77	77	23	33	43	1	1	-	-
I.iv 8-304	at Goneril's	52	46	98	53	47	31	32	-	-	9	9
I.v 1-47	"I did her /Cordelia/ wrong."	6	7	13	46	54	3	23	2	15	-	-
II.iv 1-306	at Regan's; the "bargain" scene	57	57	114	50	50	16	14	9	8	6	5
III.ii 1-78	storm	24	17	41	59	41	23	56	-	-	-	-
III.iv 3-102	storm	31	16	47	66	34	19	40	2	4	2	4
III.vi 11-82	2nd trial	22	3	25	88	12	16	64	-	-	-	-
IV.vi 8-202	3rd trial	52	31	83	63	37	40	48	-	-	-	-
IV.vii 45-85	reconciliation	9	28	37	24	76	1	3	7	19	-	-
V.iii 8-312	bliss, grief, death	31	19	50	62	38	12	24	3	6	1	2

Table 1. The Dramatic Value of Lear's Verbal Expressions. Lines of Proof 1 and 2.
Key to abbreviations: (A) = Agentive; (NA) = Non-Agentive; VE = Verbal Expressions where Lear refers to himself, or where references to himself are inferred. TVE = Total number of VE. I = Imperative; E = Entreaty; C = Curse; % = Percentage in relation to TVE in the scene.

Table 2. Line of Proof 1. Key to abbreviations; I = Imperative; E = Entreaty; C = Curse; O = Oath; Th = Threat; T (DSA) = Total number of Distinct Speech Acts; TVE = Total number of Verbal Expressions; % = Percentage in relation to TVE in ACT ONE and in ACTS TWO - FIVE.

	Ref. to Lear's II.	Scene Identification	I	E	C	O	Th	T(DSA)	TVE
Act One	I.i 32-265	1st trial	33	1	-	10	-	44	77
	I.iv 8-304	at Goneril's	31	-	9	-	1	41	98
	I.v 1-47	"I did her [Cordelia] wrong"	3	2	-	-	-	5	13
	T(DSA)		67	3	9	10	1	90	-
	TVE								188
	% (I,E,C,O,Th)		36	2	5	5	0.5		
	% T (DSA)								48
Acts Two - Five	II.iv 1-306	at Regan's	16	9	6	1	2	34	114
	III.ii 1-78	storm	23	-	-	-	-	23	41
	III.iv 3-102	storm	19	2	2	-	-	23	47
	III.vi 11-82	2nd trial	16	-	-	1	-	17	25
	IV.vi 8-202	3rd trial	40	-	-	-	-	40	83
	IV.vii 45-85	reconciliation	1	7	-	-	-	8	37
	V.iii 8-312	bliss, grief, death	12	3	1	-	-	16	50
	T(DSA)		127	21	9	2	2	161	
	TVE								397
	% (I,E,C,O,Th)		32	5	2	0.5	0.5		
	% T(DSA)								40

CONTRASTIVE PARAGRAPH TYPES IN A PROCEDURAL DISCOURSE OF THE MIXTEC OF SAN MIGUEL EL GRANDE, OAX., MEXICO

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0. Introduction

This paper is concerned with the higher levels of segmentation and the functional relation of the resulting segments to one another in a procedural discourse in the Mixtec of San Miguel el Grande, Oax., Mexico. Primarily the segments of special interest are paragraphs--grammatical units which are larger than a sentence and smaller than a monolog. The function of paragraphs, in general, is that of developing a theme or topic within the larger theme of a whole monolog. (This is in contrast to the function of a sentence or clause which is that of presenting a proposition within a paragraph.) See Pike and Pike, 1982, Chapter 2.

Discussed in this study are six small phrases and particles in Mixtec which serve to segment a stream of speech and also to show the function of the resultant segments to one another: 1) *yúan-na te*, glossed as 'there-just and', and translated as 'then-after-that' introduces a span of one or more sentences which are in a strong sequence relation to a preceding span; 2) *te* 'and' introduces a span of one or more sentences, in general shorter than the *yúan-na te* spans and with a much less sequential function; 3) *suan* 'thus' introduces sentences which identify the topic or use of what has preceded; 4) *jā yúán*, glossed as 'NOMINALIZER that.over.there', and translated as 'because-of-that' introduces sentences explaining the reason for the preceding paragraph constituent; 5) *chí* 'because' also introduces sentences explaining the reason for the preceding paragraph constituent, but probably with less prominence than sentences introduced by *jā yúán*, 6) *co* 'because' introduces sentences which indicate contrast to the preceding paragraph constituent.

The above six markers segment and identify the **function** or **role** of paragraphs and their constituents. They also identify lower level segments and their functions. Because of the ambiguity of their functioning on more than one grammatical level, the difficulty of understanding them is increased.

Every language has devices for showing segments and functions. Also they have particles and short phrases which are often difficult to analyze. This study of Mixtec presents some of the characteristics of certain of such entities.

1. A summary of the Text and Its Major Constituents

The text speaks of how young people (at least those of about 45 years ago) find a spouse and then are married. The young man asks his father to speak to the father of the young woman whom he wants for a wife. The young people are interrogated by the parents to learn how serious each is about marriage and its responsibilities. When satisfactory attitudes have been verified, procedures for the courtship period are established. On completion of these, the actual marriage, along with appropriate festivities, takes place.

A somewhat literal translation of the text is presented in Section 4. In it are identified the markers listed above.

The major constituents of the discourse are three: The first immediate constituent is manifested by the class **Conversation**; it fills the slot of **Nucleus of the Discourse**; its role is **Negotiation of a Marriage**. The second immediate constituent is manifested by the class **Procedural Paragraph**; it fills the slot of **Target Nucleus of the Discourse**; its role is **Implementation of a Marriage**. The third immediate constituent is manifested by the class ***Sú'an* Paragraph**; it fills the slot of **Margin of the Discourse**; its role is **Closure.**

The first part of the text, which is made up of a set of procedures for negotiating a marriage relation, is carried on in dialog between the major cast of characters: the boy, his parents (principally his father), the girl, and her parents (principally her father).

The second part, which is made up of a set of procedures for implementing the marriage relation, has no dialog at all. The third part is made up of two *Sú'an* Sentences with the roles of title and utilization respectively. See Display 1 for more detail of this structure.

Abbreviations used in this paper, including the displays, are: P: paragraph, Sent: sentence, Nuc: nucleus, Mar: margin, Pt of Ref: point of reference, Y: *yú'an-na te.*

In as much as the direct quotations within Conversation are embedded monologs, with a structure all of their own, and do not reflect the basic structure of the embedding discourse (itself a monolog), only one of the embedded monologs is treated in detail in this paper. See Displays 2a and b in Section 4.

2. More on the Six Markers, the Relative Prominence of the Segments which They Introduce, and Recursion

ydan-na te translated THEN-AFTER-THAT (referred to in the remainder of the paper as Y) occurs 59 times in 21 discourses, 19 of which are in this marriage text. In all but one of the 59 examples, Y occurs sentence initial, introducing longer or larger segments (paragraphs) of the discourse. It is always accompanied by 1) a lapse of time, and frequently also by 2) a change in location, and by 3) a change of actors or speakers. The one exception of its not being sentence initial is in Sentence 42 of this text in which it occurs within a quotation in which it relates an independent interrogative clause to a preceding dependent close-knit sequence of clauses.

These factors indicate that Y is a strong sequence marker. Diagram 1 shows that each of the immediate constituents of the second part of the discourse (Procedural Paragraph) begins with Y. On the other hand, only two immediate constituents of the first part (Conversation) begin with Y. Two begin with *te* and one begins with no special marker at all.

The second marker *te* is much more ambiguous as to sequentiality. It occurs about 60 times in this one discourse. Only 20 of these are in sentence initial position and at the same time following a sentence. The segments introduced by *te* are normally much shorter than Y segments, and no more than two of the three sequential features relevant to Y (a time lapse, a change in location, and a change in actors or speakers) are present with *te*.

Another occurrence of *te* which seems to exhibit no sequentiality at all is when it introduces the first sentence of a discourse. Of 48 discourses, 34 begin with *te* including this marriage text. Three of those *te* particles follow the story title which is either a noun phrase or a nominalized clause--not a sentence.

Other occurrences of *te* conjoin verb phrases, and a few noun phrases (although *jiin* 'with' occurs most frequently between noun phrases); then *te* also occurs between short, semantically close clauses. It is here that there is indeterminacy as to whether *te* is introducing clauses within a sentence, or introducing sentences within a paragraph. This is especially true if there is a lapse of time between the segments or if the subjects are different and a following verb is not a paraphrase or expansion of the preceding verb. In Sentence 38 there is a good example of a close-knit sequence of clauses, the second

of which is introduced by *te*: '...you will not beat her *te* you will take care of her well.' In this sequence there is no lapse of time, and no change in location, nor in either subject or object. In Sentence 5 there occurs what has been considered here to be another example of a close-knit sequence of clauses, but it is not quite as tight as the preceding example '...he sits down in the house *te* he speaks...' In this sequence there is probably a slight lapse in time, but no change in either location or subject. However, in Sentence 57 there is a less closely knit sequence of clauses: '...they (the men) opened a jug *te* they (including the women) all began to drink...' In this sequence there is a small lapse in time, no change in location, but there is an addition to the group in the subject, indicated simply by the addition of a plural subject prefix in the second verb. These examples show a cline of closeness, so that the difference between a sequence of clauses making up a sentence and a sequence of sentences making up a paragraph becomes indeterminate. Our distinction between the two is rather arbitrary. Phonological features as well as grammatical features are involved.

All of these characteristics of *te* would indicate that *te* is a weaker sequence marker than is Y.

sʊ́an 'thus' introduces two sentences which have been analyzed as comprising a single paragraph. Here again there is indeterminacy between sentence and paragraph--are the two sentences simultaneously two paragraphs? There are two other discourses of the 48 whose titles occur at the end and are introduced by *sʊ́an*, but a second *Sʊ́an* Sentence with the role of utilization does not occur. It seems appropriate to consider that sentence as an optional constituent within a paragraph, rather than as filling the more prominent position of a paragraph optional to the discourse. *sʊ́an* occurs most frequently as a manner modifier within a clause.

jǎ yʊ́ǎn 'because-of-that' occurs 6 times in 21 discourses. Only once does it occur sentence medial relating two clauses within a sentence. Twice it occurs sentence initial relating sentences within a paragraph as also it does three times when it occurs following a sentence initial *te*. In all instances it signals reason or explanation for the preceding immediate constituent.

chí 'because', on the other hand, occurs 45 times relating clauses within a sentence and only five times does it occur sentence initial, relating sentences within a paragraph. In both contexts it signals the reason or explanation for the preceding immediate consitutent.

However, it also occurs 10 times following a left dislocation of the subject (in which the subject is fronted, but also occurs in the following clause). It occurs 3 times following a topicalization of the subject (in which the subject is fronted, but does not also occur in the following clause). These added functions suggest the weakened explanation factor for *chí* in contrast to *jā yúán*.

co 'but' occurs about equally relating sentences within a paragraph (5 times) and relating clauses within a sentence (4 times). In all instances it introduces a contrast to the preceding constituent.

The relative prominence of constituents of a text is a cline, and is a feature of the slot. In general, the higher the level a constituent is a part of, the greater prominence it has. Within a given construction, often only two degrees of prominence are required: nucleus and margin. However, in the procedures of the second part of the marriage text, the most nuclear of the procedures is marked as a Target Nucleus. In this paper if relative prominence of a constituent is in question, a question mark [?] is used.

Recursion of grammatical units within units of the same or lower level of the hierarchy is not uncommon. However, it is particularly true of paragraphs. It is to be noted that the internal structure of a paragraph embedded within a paragraph has the same structure as an embedding paragraph of the same type--there is no emic contrast between them. Of the nineteen paragraphs presented here, twelve occur in larger paragraphs of either the same or different type. (For a detailed treatment of paragraphs and their recursion see Longacre 1982 and Hwang 1989.)

3. Inventory of Paragraphs, Their Contrastive Features, and Their Roles in the Larger Context

Examples of paragraphs discussed in this paper are taken largely from the second and third immediate constituents of the total discourse, and from the embedded Promissory Monolog which is the boy's response to the girl's father and which is the most nuclear constituent of the class Conversation. Some other paragraphs of the Conversation will simply be listed below.

There are four different types of paragraphs in twelve examples from the last two parts of the discourse. They are: Topic Paragraph, Procedure Paragraph, Minor Procedure Paragraph, and *Sùan* Paragraph.

In addition with seven more examples of paragraphs, there are two more paragraph types in the Promissory Monolog, which is the boy's answer to the girl's father. They are Explanation Paragraph, and Point of Reference-Contrast Paragraph.

The Topic Paragraph (5 examples) has two obligatory parts: nucleus-as-topic followed by a margin-as-amplification. [The notation here is: **slot**-as-**role**. In the English sentence: *The boy went to the game with his friends, the boy* fills the subject slot and has the role of actor, hence: **subject**-as-**actor**. *with his friends* fills a clause margin slot and has the role of associated actor, hence: **clause margin**-as-**associated actor**. In the displays the class label is given above a horizontal line and the slot-role labels are given below the line.] The amplification gives more detail of the topic. The nucleus-as-topic is filled by an Explanation Sentence (44b), by a *Te* Sentence (21b and 52), by a *Co* 'but' Sentence (51), and by a Y Sentence (61). The margin-as-amplification is filled by a *Te* Sentence (22, 45, 53), by a Topic Paragraph (52-53), and by an Independent Sentence (62). A topic Paragraph, in turn, fills a margin-as-procedure of a Procedural Paragraph (21b-22, 61-62), a nucleus-as-thesis of an Explanation Paragraph (44b-45), and a margin-as-amplification of a Topic Paragraph (52-53a).

The Procedure Paragraph (8 examples) is the most frequently occurring kind of paragraph in this procedural text, a fact which is not surprising. This type is characterized by any number of procedures from one to six in this text, with varying degrees of nuclearity or marginality. A margin-as-setting is an optional part occurring in only one of the paragraphs and is filled by a Y Sentence. The procedures are filled by a Procedure Paragraph (5 examples), by a Y Sentence (7 examples), Reported Monolog (1 example--20-22), and by Minor Procedure Paragraph (1 example--65-66). A Procedure Paragraph, itself, fills a resolution-as-response of a Resolved Complex Exchange (1 example--20-21), a margin or a nucleus-as-procedure of a Procedure Paragraph (7 examples), and a nucleus-as-implementation of the total discourse (1 example--54-76).

The Minor Procedure Paragraph (65-66) contrasts with the Procedure Paragraph in that it doesn't begin with Y or *te* or a quotation. It has just two procedure parts, the first probably being marginal because it is filled by a simple Independent Sentence, with no special marker, whereas the second procedure is filled by a *Te* Sentence. Also the second part is the more important in a celebration

script. This paragraph fills a less nuclear nucleus-as-procedure of a Procedure Paragraph.

The *sǔan* Paragraph (77a-77b) is marked with two *sǔan* Sentences, the first having the role of title and the second the role of utilization. As mentioned above, this paragraph is the third and last major part of the discourse, filling the margin-as-closure.

The Explanation Paragraph (3 examples) occurs only in the one quotation, whose analysis is included in this paper. (See Displays 2a and b in Section 4.) It has two obligatory parts: thesis followed by explanation. The latter is perhaps less nuclear than the first, marked by *chi* 'because' (49), or by *jǎ yǔán* 'because-of-that' (46), or with a further embedded Explanation Paragraph within which is the *Chi* Sentence 48-49). Additional evidence that the embedded Explanation Paragraph has the role of explanation is that it repeats the last word of the thesis of the embedding paragraph, *sǔan* 'thus'. In both instances *sǔan* is a proform referring to all the negative behavior which the girl's father has mentioned. In the first instance the boy says he will not behave thus--in such a manner. Then in the second instance he uses it to introduce the thesis of why (explanation) he won't do such things. The nucleus-as-thesis of this further embedded paragraph is filled by an Explanation Sentence (one of its clauses is marked by *chi*) (47), by a Point of Reference-Contrast Sentence (48), or by a Topic Paragraph (44b-45). An optional margin-as-summary occurs in only one example and is filled by an Independent Sentence (50). The paragraph itself fills nucleus-as-explanation of an Explanation Paragraph (41-49).

There is just one example of a Point of Reference-Constrast Paragraph (47-53a) and it also occurs in the quotation of the young man. It has two parts, the first of which is probably less nuclear than the second and has the role of Point of Reference which is filled by an Explanation Paragraph (49-50). The second has the role of contrast and is filled by a *co* 'but' marked sentence. The paragraph itself fills a nucleus-as-promise regarding close associates within the behavioral Promissory Monolog.

Within the class Conversation in this discourse are paragraphs peculiar to conversations, thus not develped here. Some of them are: Compound Dialog Paragraph (23-53); Resolved Exchange Paragraph (1-2, 3-8, 19b, 9a-10, 24-34a, 34b-53); Resolved Complex Exchange Paragraph (11-22); Compound Monolog Paragraph (3-4, 23-53); Monolog Paragraph (5b-6a, 17b-19a, 20a--simultaneously an

Independent Sentence., 24b-28a, 29b-33a); and some subclasses of monolog paragraphs: Narrative Monolog Paragraph (7b-8); Hortatory Monolog Paragraph (9a--simulanteously a Y Sentence, 34b-43a); and a Promissory Monolog Paragraph (44b-53a); see Displays 2a and b for an analysis of this paragraph. Also there is an Execution Paragraph (2, 21a) which is a response in the form of action rather than speech.

4. The Text in English Translation and Some Displays of Its Constituent Structure.

The translation of the text is rather literal. Particles and short phrases in the procedural discourse, which are relevant to segmentation and function, are: *yŭan-na te* 'THEN-AFTER-THAT', *te* 'AND', *sŭan* 'Thus', *jā yŭán* 'Because-of-that', *chi* 'Because', *co* 'But'. Because quotations are embedded monologs, hence not part of the basic structure of the whole discourse, they appear in italics. Display 1, which immediately follows the translation, presents the larger structure of the discourse. Then Displays 2a and b follow, presenting the structure of the Behavioral Promissory Monolog (44b-53a) and Display 3 presents the structure of the Procedure Paragraph (63-76).

The Marriage Text

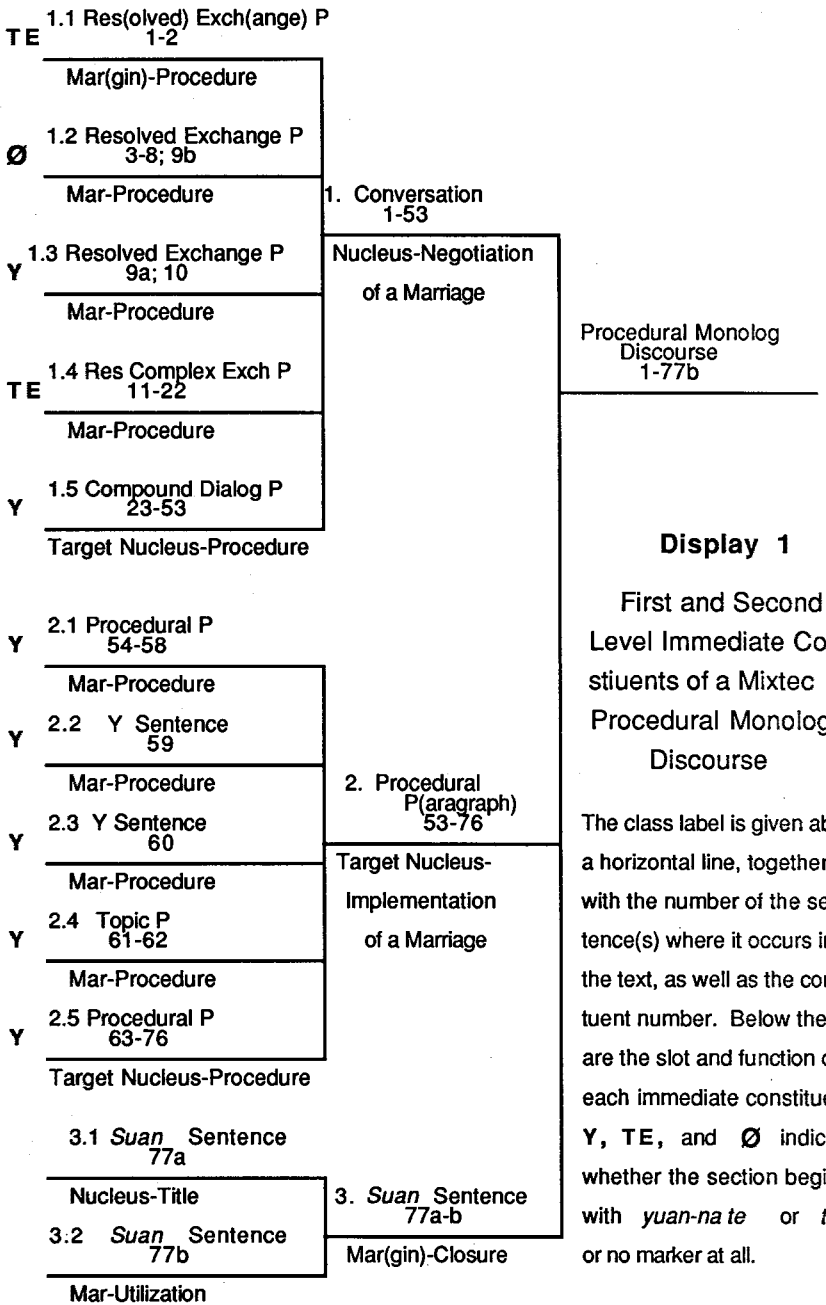
1. **AND** the [the boy] speaks with his father, "*Now go on a courtship errand for a certain girl because I am wanting her to be my wife,*" he says with his father.
2. **THEN-AFTER-THAT** he goes on the courtship errand and speaks with those people with a prepared speech for such occasions.
3. He arrives to the man who owns that child, "*Good day, sir,*" he says.
4. "*Good day, madam,*" he says.
5. **THEN-AFTER-THAT** he sits down inside the house and he speaks, he says, "*Don't be.sad because I am coming to you on business.*
6. *My son sent me to come and speak with you to see what you will say about your child marrying my child, or if/when not, and I will know to tell my child so he will look elsewhere,*" says the man who owns that male child.
7. **THEN-AFTER-THAT** that man who owns that female child spoke,"*Poor you, if/when this is the way your child is thinking and certainly I will ask this female child here.*
8. *I will question her and we will see what she will say.*

9. *Then-after-that come again eight days from now and come to get the verdict, and we will see how we stand with these children and if/when they are pleased or not,*" says the man who owns that female child.
10. **THEN-AFTER-THAT** that man left returning to his house.
11. **AND** eight days went by and he left again to get the verdict.
12. **AND** he came and he says again, "*Good day, sir,*" he says.
13. "*Good day, madam,*" he says.
14. **AND** he sat down again in the house and says again, "*Don't be sad because I come again on the business for which I came several days ago.*
15. *Because my male child is not giving up because he has sent me to come because he is pleased that your female child should be his spouse.*
16. *And that is why I have come again, and what has your dear wife decided?*
17. **THEN-AFTER-THAT** the man who owns that female child spoke,"*Poor you, go and fetch your male child come with him and we will question him and whether or not he is sincere in wanting to be the spouse of my child because she likes your son.*
18. *And let us question them so that it will not happen and they become tired of each other and leave each other and make fun of us before the justice and authorities.*
19. *We will be ashamed if/when it happens thus with us and poor us,*" says that man.
20. "*So be it then,*" says the other man.
21a. **AND** he left, he was going.
21b. **AND** he returned after eight days with his male child with his wife with a little something depending on how well he likes with that other man.
22. **AND** he went bought a little jug of pulque with three pesos worth of bread with a kilo of sugar with a small amount of coffee and he comes with tea with a leg of barbecued goat meat.
23 **THEN-AFTER-THAT** he comes with his wife with his male child.
24a. **AND** they all came and they questioned their children.
24b. "*Daughter dear, speak truthfully and if/when yes that this boy be your spouse.*
25. *And it must not be and something happens tomorrow or in the future; and I will not be pleased because you ridicule me, and you say, 'I would not have gone with him but because you forced me to.*

26. *And now I have not gotten along well with him,' you say"* he says.
27. *"You will accuse me to the court and I am not pleased that you do thus with my co-father with my co-mother.*
28. *And what do you say?"* he says with her.
29. **THEN-AFTER-THAT** that female child spoke,"*No because once for all I have chosen have decided firmly that I [will be] his spouse.*
30. *If/when this child dies and life comes and we all die and I am free to marry with another man.*
31. *And likewise he, and if/when I die and he is free to look for another woman.*
32. *And or if/when he left me, but that is his fault.*
33. *But I because I do not do thus that I commit adultery, because if/when I do God will give me calamity,"* says that female child.
34. *"Good, and you, male child, what are you thinking about in looking for a wife that you take a companion forever.*
35. *Or how long [will it be] and when she becomes wrinkled and ugly and you do not do good with her.*
36. *Because if/when she bear children and she be ugly because she wrinkles.*
37. *No longer is she like she was when young.*
38. *And if/when you are a good man you will not give her beatings and will watch her carefully.*
39. *And you will not drink pulque.*
40. *And you will buy her clothes and you will buy all that you will eat with her.*
41. *Then-after-that she will be all right.*
42. *And if/when you do not do good with her and she be ugly and wrinkled and you tire of her then-after-that will you leave her?*
43. *And what do you say so that you will not do thus so that God will not be angry toward us,"* says he.
44a. THEN-AFTER-THAT that male child spoke
44b. *No, because once for all I have decided that she be my wife.*
45. ***AND** I certainly will not leave her and ifwhen she also is pleased with me because I am pleased with her that i will not leave her.*
46. ***Because-of-that** I am looking for her to be my spouse.*
47. *No, because I do not do thus at all.*
48. *Some people do thus, but as for me, I do not do this.*
49. ***Because** some people are different.*
50. *They do not all do the same.*

51. ***But*** *as for me, because I do not like to do thus with that which is female, because that is very bad sin that we do thus.*
52. ***AND*** *if/when I marry her and I will not drink pulque and there will not be a co-father for me.*
53a. ***AND*** *co-fathers with friends are those that do thus that cause us to make mistakes, but as for me I will not do thus.*
54. **THEN-AFTER-THAT** the people who are the fathers and mothers were happy and accepted the words.
55. **AND** those wives made broth with coffee.
56. **AND** all three couples drank ate food with coffee with bread.
57. **AND** the men opened the jug and they all began to drink pulque.
58. **AND** they got drunk and they sing, they yell, they gossip about their enemies.
59. **THEN-AFTER-THAT** that woman left with that man with her male child they (3rd feminine) return to her house.
60. **THEN-AFTER-THAT** another time they (3rd feminine) went and they discussed that it be for one year that the boy serve in courtship and before they marry off the children.
61. **THEN-AFTER-THAT** one year finishes and they all went they [the parents] registered them.
62. Month by month he went to the house of that man with that for them to eat.
63. **THEN-AFTER-THAT** one year is finished and they all went they registered them.
64. **AND** 8 days later and they caused them to marry.
65. 8 sheep or 10 little goats or a cow and 15 boxes of corn and 8 bundles of brown sugar and 1 box of salt and 1 box of chilis went.
66. **AND** those animals arrive there and die and there is food.
67. **THEN-AFTER-THAT** they go, they go get the bride with a good skirt, with her shawl with her earrings with her necklace with her ring with her comb with her ribbon with pins that enter her hair with oil with her flowered head piece.
68. **AND** they put sandals on her feet.
69. **THEN-AFTER-THAT** for that male child that girl's father buys his trousers with a shirt to put on with his hat with that which is his blanket with his sandals and they dress him.
70. **THEN-AFTER-THAT** they all sit down at the table and on that table is located a saint and a candle is standing before it and there the candle burns before that saint.

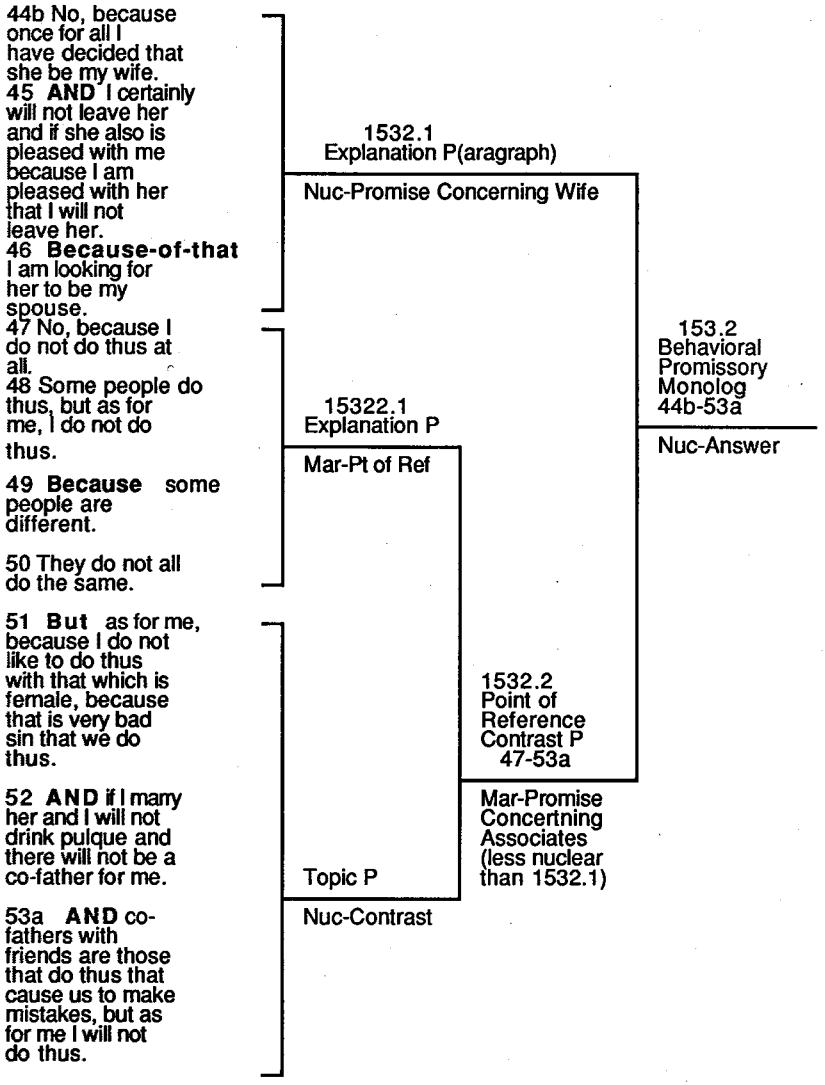
71. **AND** there a new mat lies down and there they sit down with the god-mother and they eat tortillas.
72. **AND** if they finish eating tortillas and they all stand and they pull along their companions and they go to the priest.
73. **AND** they arrive there and that priest places a fine cloth on her head.
74. **THEN-AFTER-THAT** they all recite the catechism.
75. **AND** that priest puts money in their hands and they transfer it into each other's hands.
76. **THEN-AFTER-THAT** it is finished and they come, come pouring into their house and they come and they sit down.
77a. **THUS** is the story that they do about marriage.
77b. **THUS** they marry off their children.



Display 1

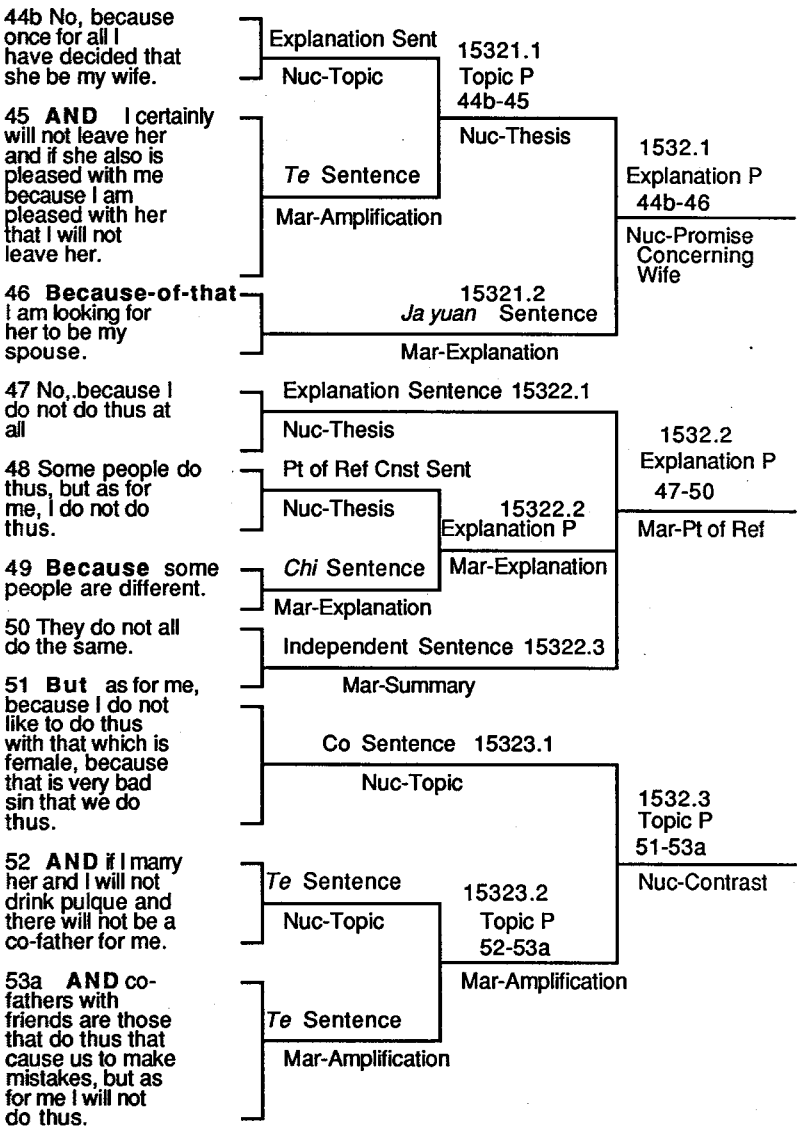
First and Second Level Immediate Constiuents of a Mixtec Procedural Monolog Discourse

The class label is given above a horizontal line, together with the number of the sentence(s) where it occurs in the text, as well as the constituent number. Below the line are the slot and function of each immediate constituent. **Y**, **TE**, and **Ø** indicate whether the section begins with *yuan-na te* or *te*, or no marker at all.



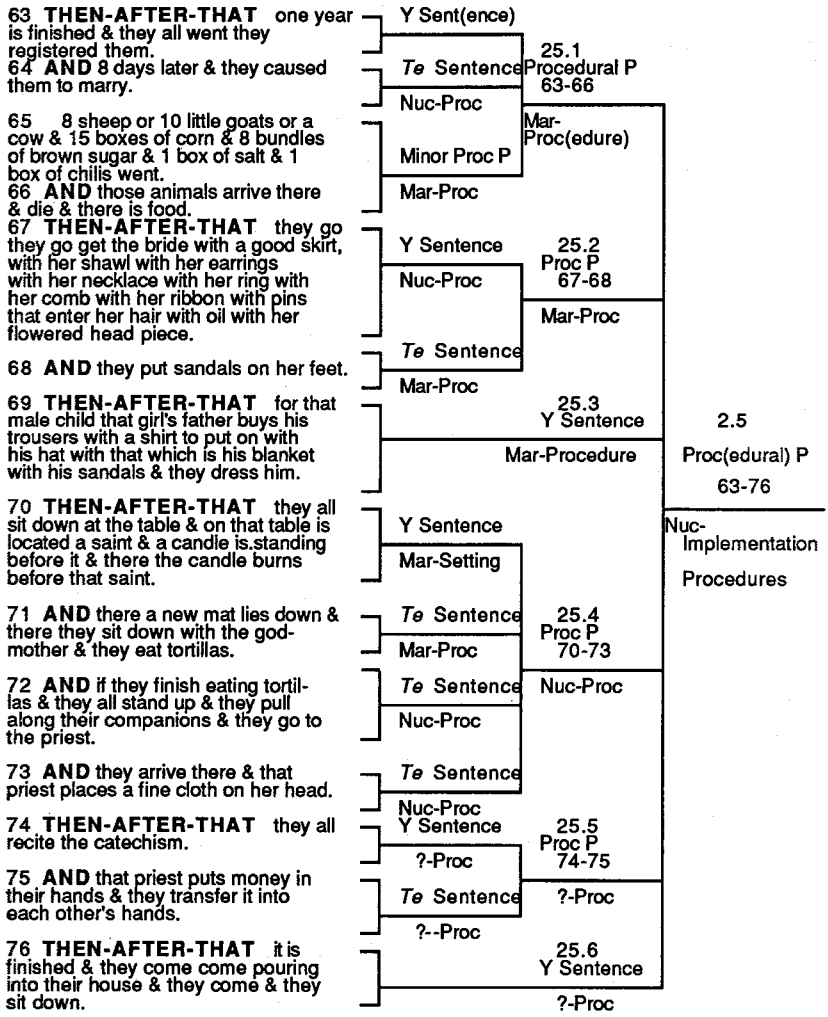
Display 2a
The Two Outer Levels of the Structure
of an Embedded Monolog

This is the boy's response to the questioning of the girl's father. Note the *te* **'AND'**, *ja yuan* **'Because-of-that'**, *chi* **'Because'**, *co* **'But'**.



Display 2b

Inner Levels of the Structure of the Embedded Monolog of Display 2a



Display 3

The Structrure of the Largest Procedural Paragraph in the Discourse

5. Summary

Of the six paragraph types presented here, the most contrastive ones are those which have at least one marked constituent: 1) the *Súan* Paragraph is marked with two sentence constituents each beginning with *súan*, 2) the Point of Reference-Contrast Paragraph has two constituents (both are paragraphs), the second of which is marked with *co* 'because; 3) the Explanation Paragraph has two constituents, the first of which is the thesis and the second is explanation. The explanation constituent is marked with *chí* 'because' or *jā yúán* 'because-of-that' or an embedded
Explanation Paragraph with its own *Chí* Sentence; 4) the Procedural Paragraph has as many as seven constituents which are marked either with an initial Y Sentence, or an initial *Te* Sentence or in one instance with a Reported Monolog. This is in direct contrast with a comparable paragraph, 5) the Minor Procedural Paragraph, whose initial sentence has no marker at all; 6) the Topic Paragraph contrasts with wll other paragraph even though neither of its two obligatory pars is introduced by a marker, but rather by the contrastive roles each part fills: topic and amplification, respectively. These are identified by the fact that, were the amplification omitted, very little of the understanding of the narrator's message would be lost. Also the amplification is only a minor part of the script being addressed.

Some paragraphs open with a setting and some close with a summary. Probably with more examples most types would be seen to include these optional parts.

The Mixtec paragraph is a complex and useful unit of sequences of sentences serving to develop the theme of a discourse. It is usually identifiable. However, there are some indeterminacies between sentence and paragraph, particularly when *te* 'and' connects two or more short, semantically related clauses. The comparability of the constituent structure of larger or embedding paragraphs with smaller or embedded paragraphs of the same typ speaks for the validity of the recursive nature of paragraphs.

Finally, the six markers 1) *yúan-na te*, 2) *te*, 3) *súan*, 4) *jā yúán*, 5) *chí*, and 6) *co* serve to both segement discourses into paragraphs and lower level units and to identify the function of the

resulting segments. Much work remains to be done to identify a full inventory of Mixtec paragraph types together with their functions.

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TWO CONTEMPORARY LEXICAL CORRELATIONS IN STANCE ADVERBS: THE ROLE OF BOUNDEDNESS IN THE SYSTEMATIC DEVELOPMENT OF PAIRED INTERPERSONAL AND METALINGUISTIC USES

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One of the ways in which a speaker may increase the chances that a hearer will understand and accept a message in the terms the speaker desires is by offering an overt, metalinguistic comment on it. The speaker's strategy is a stipulative manoeuvre which is intended to preempt a hearer's interpretation. Stance adverbs (Biber & Finegan 1988) may be enlisted for this purpose: for example, loosely, generally and roughly and their antonymic counterparts, strictly, specifically and precisely combine with the participle speaking to form loosely speaking, generally speaking and so on. Because these phrasal modifiers perform the semantic role of manner adverbials, they help to define the style of a message as it expressly is intended by the speaker.

Other stance adverbs, such content disjuncts as actually, exactly and really, may be enlisted to encode a speaker's normative judgment respecting degree or conditions of truth, or a speaker's opinion as to the value of some aspect of the message. Some adverbs functionally cross-classify to modify either style or content; and some may serve as emphasizers, really commonly performing this function. Thus in various ways, these and other stance adverbs act as subjectively modalized (Lyons 1982: 102) constituents whose principal function is to express a speaker's perspective on a message or on parts of it.[1]

Like virtually all lexemes, stance adverbs are multifunctional, in the sense that they encode cognitive and interpersonal (social and expressive) meaning. As metalinguistic qualifiers of style and content, their cognitive import defines a type of linguistic fit from word-to-word and/or word-to-world, thereby effecting a denotative adjustment ranging on a continuum from close to lax. In addition, their interpersonal import invites a hearer to assume that the speaker holds a certain degree of personal or interpersonal commitment toward some aspect of the message or toward the message as a whole. Importantly, the type of interpersonal commitment is always in systematic parallel with the type of fit, as in the following correlations (Powell 1989· Forthcoming):

(1) The looser the fit of word-to-word or word-to-world, the greater is the speaker's attitudinal distance or detachment from what is said or the way in which it is said.

(2) The closer the fit of word-to-word or word-to-world, the greater is the speaker's attitudinal commitment to or responsibility for what is said or the way in which it is said.

I have shown elsewhere (Powell, under submission) that loosely, generally and roughly conform to Correlation (1); that

strait/strictly, specifically, precisely, actually, exactly and really conform to Correlation 2; and that the historical development of their lexically correlated uses conforms to Traugott's (1989) unidirectional constraints on lexical development.[2] In addition, in this semantically interrelated set, the unidirectional constraints appear to operate independently of, but compatibly with, synchronic pressure from partial synonymy and antonymy.

Here I should like to observe that a core, semantic constituent, present in etymological sources and preserved in contemporary uses of these adverbs determines the functional correlation that each adverb develops, with one exception--that of generally. I shall provide evidence for the following generalization: adverbs which affect a close linguistic fit do so through a means common to them all: some constituent in their core meaning may impose a condition of manifest boundedness, the result of which is to increase the perceptibility of the qualified constituent for the hearer. Since the cognitive (metalinguistic) meanings of these adverbs affect denotation by either qualifying the possible world of which a meaning is a constituent or qualifying the denotational range of a constituent in a possible world, the heightened effect is achieved either by locating a meaning in an intersubjectively shareable world or by imposing manifest boundedness on a denotation of a possible world. Adverbs which do not affect a close fit (generally, loosely and roughly) are antonymically related to others in part because no constituent in their core meaning may impose a condition of manifest boundedness.

I shall date only the earliest English uses, which, for the most part, exemplify externally situated uses. Then, taking evidence from the historical development of the lexeme band/bond, I will show how the core notion of boundedness may be extended from externally situated to (sometimes later developing) interpersonal and metalinguistic uses.[3]

(1) Adverbs which attribute a constituent to an intersubjectively perceptible external world: unbound vs. manifestly bound

Both really and actually attribute a meaning to a perceptually salient, intersubjective world. Both are developments from earlier dichotomous sets: reālis/irrealis, actualis/potentiālis. Initially, therefore, the way in which manifest boundedness participates in these distinctions is through binary opposition; later, the lexemes become scalar in a development which is common and well-known in diachronic lexical semantics (Bolinger 1972, Traugott 1986, Stoffel 1901). Really derives from OF real, reel (13 c in Godef.) or an adaptation of late Latin reālis, f. rēs, meaning 'thing'. One branch of the Latin lexeme, when used as an emphatic, could mean, 'the real thing, fact, truth, reality'. The developmental sequence would seem to be that, since things (in contrast to non-things, irrealis) are uniquely individuated by defining properties and are bound by spatio-temporal dimensions (thereby qualifying for real world status), one is entitled to extrapolate from an object that exhibits this status to the status itself. The earliest and extant English external use of really (? a1425) preserves not only the meaning of thingness but also the

emphatic meaning of 'real thing', as in 'in fact'. However, this early use is not specialized along an emphatic dimension; rather English really develops its own emphatic use later (1815). All the same, to ascribe real status to a constituent is to locate it in a world in which, at least in principle, both speaker and hearer have mutual perceptual access.

Actually functions in a similar way, except that it participates in an actualis/potentiālis dichotomy. Actually develops as in French actuel, or as an adaptation of late Latin actual-is (in philosophical and theological writers), meaning 'of or pertaining to action'; f. actu-s, meaning 'acting'. One of the two earliest English external uses (1470-85 obs.) encodes the sense of 'actively', that is, 'manifestly in action'. Now it is through action and acting that acts are instantiated. And like things, acts are spatio-temporally bound; they, too, may qualify as occurrences in a real world. Hence the other of the two early external uses of actually (? a1425) instantiates the meaning 'in reality', a meaning which remains central. One can see that really and actually are symmetrical synonyms in part because both have the capacity to assign a constituent to a real world--to bind it manifestly to the spatio-temporal dimensions of that world--and hence to attribute an objectifiable status to that qualified constituent. When a speaker so stipulates that a constituent is publically available, s/he entitles a hearer to believe that the qualified constituent is mutually perceptible, at least in principle, and not merely the property of a private imagination.

(2) Adverbs which increase the perceptibility of a denotation of a possible world

(a) Through increasing boundedness to a manifest degree

Another way in which the perceptibility of an entity may be increased is through unequivocally controlling its extent while preserving its characterizing properties. Here, one assumes some initial degree of boundedness in a world and then increases the degree through adverbial qualification. Strait/strictly and precisely may perform this function; loosely, on the other hand, cannot.

Both strait and strictly derive from Latin v. stringere, 'to tighten, bind tightly'; ppl. strictus, 'drawn together'. Precisely derives from an adaptation of Latin praecidĕre, 'to cut off (in front), cut short, abridge' and the pa. ppl. praecīsus, 'cut off, abrupt, shortened'. All of these early meanings encode a capacity to impose unequivocal boundedness, an effect, however, which need not be accomplished by removing a property that is essential to the ontological status of the affected constituent. In the case of the etymological sources of strait/strictly, increased boundedness is achieved through bringing entities into closer proximity to one another, as in compression. In the case of precisely, boundedness is increased through arresting the forward extension ('to cut off in front', 'shortened') of an entity which does not require continuous forward extension for realizing or maintaining its ontological status. Similarly, the meaning 'to abridge' modifies an entity by removing constituents which are not essential to its ontological status.

This highly general modifying potential encoded in the etymological meanings--the capacity to increase boundedness without compromising ontological status--is preserved in the earliest use of strait (c 1200 obs.), and the earliest and extant metalinguistic uses of strictly (1487) and of precisely (? a1425).[4] Indeed, these adverbial modifiers denote an extreme degree of accuracy when they are used to qualify a definition. Moreover, it is in virtue of sharing this core semantic function that they are entitled to incur symmetrical synonymy each to each and to exactly, which, as we shall see, not only preserves ontological integrity but expresses it via a paragon case.

One reason why strictly may incur antonymy with loosely is that the latter derives from Common Germanic *lausaz, f.*laus-, and that shared by all of the developments in Common Germanic is a conception of extreme unboundedness: 'loose', 'free, unoccupied', 'destitute of', 'loose in conduct, immoral', 'vain, empty, worthless'. In addition, the extreme degree of unboundedness may compromise the ontological integrity of a qualified constituent. For example, OE adjective lēas could mean both 'destitute of' and 'false/lying'. The first sense encodes a condition of extreme deficiency in something essential; the second defines a speech act deficient on empirical ('false') or on moral ('lying') grounds.

The earliest English adverbial uses encode an extreme degree of unboundedness with respect to human behavior, behavior that exhibits laxness in control (1377); the second denotes a marked degree of unboundedness with respect to the way in which physical objects are joined (c 1400). Thus, it is in part for these reasons that loosely may incur antonymy with strictly. Interestingly, loosely does not incur antonymy with precisely because another lexeme, roughly, may mean 'not cut off', and this meaning is in closer antonymic contrast to precisely than is the core of roughly. The contemporary metalinguistic use of loosely retains the semantic core present in the etymological source--the capacity to affect an extreme degree of unboundedness which may alter the ontological status of a modified constituent.

(b) Through representing a manifestly bound prototypical exemplar

A further and final way in which one may increase the perceptibility of a constituent for a hearer is through expressing a prototypical realization of it. Two of the quite varied types of prototypes (Lakoff 1987: Part I) are exemplified by exactly and specifically. The first exemplifies a paragon case (1987: 87-88), the second, a submodel (1987: 89).

Exactly derives from an adaptation of Latin exigĕre, 'to complete, bring to perfection', and 'to calculate precisely'; and the pa. ppl. exact-us, whose adjectival sense could mean (1) 'highly finished, consummate' (deriving from the first set of infinitival meanings), and (2) 'accurate, precise' (deriving from the second set). In the first set of meanings, a paragon case is perceptually salient in virtue of having attained perfection through manifest boundedness to a set of ideal standards. The notion of perfection is preserved in the earliest English use (a1533 obs.). Similarly,

the second set of meanings of accuracy and precision exhibits manifest boundedness by qualifying a case that is prototypically salient through exemplifying an ultimate degree of care which is undertaken to conform to a standard. It is this second set of meanings that enters English uses very early (1612 rare), but that also persists (1662). And it is also, in part, in virtue of this latter set of meanings that exactly incurs synonymy with strictly and precisely; all three lexemes may denote a condition of manifest boundedness which is not achieved at the expense of conceptual integrity.

In antonymic contrast to exactly is roughly, from West Germanic *rū(w)az, related to Lithuanian rùkti, 'be wrinkled' and Sanskrit rūkṣás, 'rough'. These qualifiers are not applied to highly finished or carefully executed entities which then come to serve as paragon exemplars. The sense, 'rough', in OE (a 1000) first was realized as 'unsmooth on external physical surfaces and thus harsh to the touch'. Such surfaces are constituted of projections which have not been 'cut off' (as in precisely) or bound tightly (as in strictly)--not manifestly bound through controlling extent while preserving characteristic qualities. Roughly is like loosely in this respect; in fact, in metalinguistic contexts in which they are syntactically intersubstitutable, each will preserve the truthconditions of the other. Because roughly (a 1300) cannot control extent while preserving characteristic qualities of a qualified constituent, it may incur antonymy with strictly and precisely. Moreover, this core etymological sense is preserved in all contemporary uses of roughly.

A second type of prototype is exemplified by specifically, which increases the perceptibility of an entity by presenting it as a submodel. Derived from ad. med. Latin specific-us, f. species, specifically develops from the logical sense of 'a kind, species'. A species is so defined when all of its members possess the common attributes or essential qualities of a class: it is through these properties that a species is manifestly bound to its class. The core sense which denotes characterizing qualities at a particular level of abstraction is present in both of the earliest external uses (1624, 1646). Because this core qualifies an entity which retains all essential characteristics and does so in a particularizing manner, specifically incurs partial synonymy with precisely and exactly. In addition, specifically incurs antonymy with generally because the latter has weakened in meaning so that it no longer encodes particularity.

Derived from ad. Latin general-is, f. gener-, its meaning initially was 'pertaining to the (whole) kind or class'. In this etymological and earliest English sense (a1300 obs.), generally exemplified the universal case, one in which all members may be characteristic. Thus, this lexeme initially imposed a tight linguistic fit. No longer encoding that conception, generally preserves the idea of only a majority of the kind without reference to particular members (1374). Through its logical source and weakened meaning, generally incurs antonymy with specifically. It is more weakly antonymic with precisely, but it incurs that relationship in part because generally cannot guarantee that it preserves

the characteristics of each of the entities it qualifies since it has lost the capacity to denote particularity.

In making a case for the explanatory relevance of a core notion of boundedness to the development of the correlations, we have seen that this core is preserved in the earliest English uses, nearly all of which are externally situated. One may move from this evidence to an account of how interpersonal and metalinguistic uses (which may be later developing) are related to the core without taking the case of each adverb individually. Instead one may discover the generalization that governs them all by examining the noun bond (ME also band) and then by showing the applicability of this evidence to the adverbial meanings.

The noun bond (band) first appears in English in a physical sense, as in a fetter or shackle (MED 1126). As early as 1200, the lexeme developed a sense denoting a personal commitment, a pledge, an obligation or duty; and by c1500 (MED), it could denote a relationship between one's word and one's attitude toward it, a relationship made clear in Lancelot 1673: O Kingis word shuld be a kingis bond. That is, a king should be manifestly bound to his word. Thus a bond is that which joins two or more constituents; that which is manifestly bound is so affected that the constituents are considered more nearly one unit than formerly, whether material object to material object, person to person, or speaker's express message to speaker's attitude. Characteristically then, a tight metalinguistic fit entitles a hearer to infer that a speaker is more closely committed to the message as it is encoded than if it had been encoded loosely. This is not to say that a speaker may never be closely committed to a loose fit, but should this case arise, it must be signalled via a prosodic pattern or some other means that conveys its uncharacteristic nature.

Appendix

actually

MED In fact, in reality, actually, effectively. ? a1425 *Chauliac (1) 111b/b: To cure it actuale [*Ch. (2): in dede] whilez it is introduct but ys not confermed. 'To cure it effectively while it is in initial stages and not established.'

OED #2 Actively, energetically. 1470-85 obs.: Malory Morte d' Arth. (1816) I 137: Then on foot they drew their swords and did full actually.

exactly

OED #1 In a perfect manner, perfectly; to a perfect degree, to perfection; completely. a1533 obs.: Frith Disput. Purgat. (1829) 85: The Scripture is for that intent left with us, that it may be understood of us exactly, and to the uttermost point.

OED #2 In an exact or accurate manner; with careful attention to detail; with strict conformity to rule; punctually; with propriety. Now somewhat rare. 1612 Brinsley Lud. Lit. xxi (1627) 249: Learning to construe the Hebrew into the Latine exactly.

OED #5a Of resemblance, agreement, adaptation, correlation: Precisely; without any discrepancy. 1662 Stillingfl. Orig. Sacr. II. vi Para. 2: Every event is not exactly correspondent to the

prediction.

generally

OED #1 So as to include every particular, or every individual; in a body, as a whole, collectively. a1300 obs. Cursor M. 29118: Generali nu haf i tald þe pointes þat ar for to hald. 'Generally now I have told the points that are to hold.'

OED #2b In a weaker sense: With respect to the majority or larger part; for the most part, extensively. c1374 Chaucer Troylus I 86: It ... generally was spoken, That Calkas traytor fals fled was, and allyed with hem of Grece. 'It generally was said that (the) false traitor Calkas had fled, and allied with them of Greece.'

loosely

OED #2 Without care, strictness or rigour; not strictly; carelessly; negligently, laxly. Said esp. of thought or its expression. 1377 Langl. P. Pl. B XII 213: For he is in þe lowest of heuene... And wel loselyche lolleth þere by þe lawe of holychercheche. 'For he is in the lowest of the heavens ... And will loosely loll there according to the law of holychurch.'

OED #1 Not tightly, slackly; without tightness, closeness, rigidity, or cohesion. c1400 Lanfranc's Cirurg. 82: Bynde it [a ligature] losely at þe mouþ of þe wounde. 'Bind it [a ligature] loosely at the mouth of the wound.'

precisely

MED Exactly. ? a1425 *MS Htrn. 95 176a/b: þe maner of sublimacioun maie not be writen precisely, neȝer knownen, but ȝif a man sawe hem ofte tymes sublimed. 'The manner of sublimation may not be written exactly, nor known, unless a man saw them often times sublimed.'

really

MED Actually, in fact. ? a1425 *Chauliac (1) 18a/a: þof al it be one bone realy [Ch. (2): substancially; L. realiter], neþerlez it haþ 3 nominacions, And for þi of some men þai bene seid 3 bonez. 'Even though all of it is one favour actually ... nevertheless it has 3 names, and therefore they are called 3 favours by some men.'

rough (adj.)

OED #11. Having a surface diversified with small projections, points, bristles, etc. so as to be harsh or disagreeable to the touch; not even or smooth. a1000 Riddles xxvi. 5: Staþol min is steap ... neo an ruh nathwaer. 'My land is steep ... rough in some places from beneath.'

roughly

OED #1 In a rough, ungentle, or violent manner; with roughness or violence. a1300 Cursor M. 22151: þe wind to do rughli to rise. 'To make the wind roughly to rise.'

specifically

OED #1 In respect of specific or inherent qualities (a) Of likeness or difference. 1624 Gataker Transubst. 48: One thing is said to be another, which cannot be individually or specifically the same.

OED #2 In a specific or definite form or manner. 1646 Sir T. Browne Pseud. Ep. 95: [They] seem specifically and in regular shapes to attend the corruption of their bodyes.

strait (adv.)

OED #1 Tightly. c1200 obs. exc. dial. Trin. Coll. Hom. 197: Nos sumus quasi serpentes terre corpore adherentes ... We bed alse þe neddre, hie smuȝð strect bi þe eorðe. 'We are as if serpents adhering bodily to the earth ... We are also the adder, who crawls tightly on the earth.'

strictly

OED #3a With reference to commands, obligation, etc.: Rigorously, stringently; with insistence on exact performance, execution or obedience. 1487 Plumpton Corr. (Camden) 54: I therfore on the Kinges behalfe strictly charg you ... that ye [etc.].

Footnotes

[1]The term content disjunct and the remarks respecting the style/content distinction are from Greenbaum (1969) and Quirk et al. (1985)

[2]Literally also conforms to Correlation 2 (Powell, 1989, Forthcoming).

[3]See Appendix for the sentences cited by date in the text. I am grateful to Gernot Wieland for generous advice on the translations. I have simplified some of the etymologies which may be found in the OED (1989) and The Oxford Dictionary of English Etymology (1966).

I intend synonymy as in 'partial synonymy' and antonymy as in 'gradable opposition'.

[4]Although 1487 is not only the earliest metalinguistic, but also the earliest use of strictly, precisely first appears in c1392 (MED).

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WELL AS MARKER OF POWER IN CONVERSATION

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Bolinger has remarked that the discourse particle **well** "deserves, and has received, more discussion than any of the other interjections" (1989, p. 300). In the past two decades linguists have looked at this nuanced particle from differing angles and through various theoretical filters, only to realize that quite a bit of work remains before **well**'s ranges of uses and meanings are fully discovered.

Diverse uses of the marker **well** may also be the result of varying power differentials on the part of discourse participants. Fairclough (1989), in Language and Power, asserts that language and society are in an internal dialectical relationship, that every conversation serves to maintain or challenge social power, and that this happens outside of conscious awareness. In fact, the more normative the dominant discourse appears, the more powerful its ideological assumptions. Power in discourse, then, is not necessarily manifested by overt struggle, but by mutually accepted presuppositions.

While no analyst would be reductive enough to delimit well to a single linguistic domain, two or more camps are revealed in the literature on the subject, whose ranks are determined by the WH-questions central to each study. Hines (1978), Carlson (1984), and Bolinger (1989) are interested in the word what; that is, what meaning does **well** contribute to the discourse in question? Other analysts, like Goldberg (1980), Stubbs (1983) and Schiffrin (1987) are interested in the where of **well**: where does it fall syntactically and contextually? Closely related to the latter category is the question of when, situationally, **well** may be used in an appropriate way. R. Lakoff (1973) and Svartvik (1980) have addressed this side of **well**-usage.

In 1975, R. Lakoff pointed the way to another WH question that must not be overlooked. She defined **well** as a word that conveys "the sense that the speaker is uncertain about what he (or she) is saying, or cannot vouch for the accuracy of the statement" (p. 54). As a hedge, it is demonstrative of a form of politeness that borders on powerlessness, and as such she attributes it to women's speech. In other words, who uses **well**? Can contrastive uses of **well** be differentiated by examining the speech of interlocutors with various social identities? This paper will serve the purpose of examining relevant data, with the hope of encouraging more research interest in this question.

The data used in this study was transcribed from three separate casual conversations. Text A is a transcript of a

conversation between four interlocutors, two men and two women, which occurred during a car trip from Payson, Arizona, to Flagstaff, Arizona. The four participants were returning from a district meeting where they represented a Flagstaff church. One of the men was the pastor of this church, and the other participants were parishioners there. They were all in their early forties except the observer/participant, who was thirty-four. This was a very socially congruent group, since all four were protestant, white, well-educated, and could be regarded economically as belonging to the middle to upper-middle class.

Text B is from a gathering of an extended family group including three generations. In this case the tape recorder was set in the kitchen and was left on from dinner preparation time through clean-up at the end of the meal. There were five men and five women participating, with occasional interruptions from six children. Even though this group was from a single family and evidences a fairly homogeneous conversational style, there was wide social disparity due to age, economic, educational, religious and political differences.

The structure of the conversation in Text C is slightly varied from the other two, because the data is based on two meetings of a graduate student study group. The group was comprised of two women who were native speakers of English, two women who were non-native speakers of English, and one male non-native speaker. The data is therefore topically focused and includes elements of both interlanguage and foreigner talk.

The three texts combined yielded 225 uses of **well** in a non-adverbial sense. Text A yielded 125 uses, Text B yielded 55 uses, and Text C yielded 45 uses. Of the total, 72% were utterance-initial, and 28% were utterance-medial. This differs from Svartvik's (1980) survey, where the utterance positions of **well** were divided fairly equally. In the utterance-initial division for this study, at least 75% of the **well**s used were clearly markers of response, and up to 25% were of debatable classification. There is no question that **well** is primarily a marker of response (Schiffrin, 1987), and that it frequently functions as a hedge to soften the blow of disagreement. However, the divergent uses of **well** need to be examined more closely, and if both the response and divergent uses of **well** are examined in the light of both speaker and situation, it will be found that varying uses of **well** reflect different aspects of conversational control and even social status.

In the attempt to discover who uses **well** and whether it makes a difference, I asked the following questions. How many times did each individual use **well**, and what percentage of the individual's total word usage did this comprise? Who used **well** interruptively, and how many times did this occur? Who used **well** as a topic initiator, how many times? Who used **well** as a summing-up response, and how many times?

Well Used by Individuals

Table 1 summarizes the results of the data pertaining to the first question. Due to space considerations I have only listed representative samples. The table lists total words spoken by each representative individual, total **wells**, and what percentage of the total is **well**-usage. In the data, A4, B10, and C1 are all the same speaker.

Table 1. Individual usage of **well**

	Speakers			
	Men		Women	
Text A	A1	A3	A2	A4
Words	6273	3202	6432	2827
Wells	59	18	25	16
%	0.94%	0.56%	0.38%	0.56%
Text B	B1	B4	B2	B10
Words	1251	600	1692	680
Wells	7	4	27	5
%	0.56%	0.66%	1.59%	0.73%
Text C	C3		C5	C1
Words	3090		1883	13020
Wells	11		2	25
%	0.36%		0.05%	0.19%

On this level, the data makes **well** use seem fairly idiosyncratic, a point of individual style. Patterns of gender-contrastive uses are not recognizable. There are some patterns that should be noticed, however. The last column displays data from one speaker. In Text C she lowers her rate of **well**-usage considerably. In fact, the rate of **well**-usage for all of Text C is lower than that of the other conversations. I attribute this to several factors. In the first place, Text C includes non-native speakers who have fewer opportunities to gain competence in the nuances of interjections. Also, I intend to corroborate the use of **well** as topic initiator, and in the case of Text C, a pre-agreed topic agenda already exists for the study group, eliminating the need for the use of **well** in topic initiation. Another suggestion is that the study group has no officially recognized head; as graduate students its members are social equals. This reduces the need for the **well** particle to either appease or mask power.

In all the data, two speakers, A1 for Text A and B2 for Text B, stand out in terms of the frequency of their **well**-usage. A1 is a male religious authority figure, and B2 is a female family authority figure. Both nearly reach or surpass the 1% mark, yet they diverge in the ways they use the particle.

Well Used Interruptively

Table 2 reflects one way in which speakers A1 and B2 diverged. That is, A1 was more interruptive. Other than this, rates of **well**-interruption seemed to contrast more according to individual and regional stylistic differences than according to gender or social power differences. Table 2 shows the number of **wells** that were used interruptively and what percentage of the total number of **wells** were used interruptively. Text C is not included; it offered no great contrasts except that the speaker C1 did not use **well** interruptively at all, compared to 16% and 20% in the other conversations.

Table 2. **Well** used interruptively

	Speakers							
	Men				Women			
	A1	A3	B1	B4	A2	A4	B2	B10
Interruption	9	0	1	0	4	3	2	1
% of Total	15%	0%	14%	0%	16%	16%	7%	20%

Well in Topic Initiation

Another way A1 differs from B2 is in the matter of using **well** to initiate topics. Why is it important to differentiate a topic initiation pattern from the response pattern? Topic initiation is closely related to conversational control. **Well** used in an anaphoric sense of response is subordinate in conversational control because the response choice is delimited. **Well** used in the cataphoric sense of topic initiation dominates in conversational control, because the initiator is not only choosing a topic, but in this use frequently selects which interlocutor should address the chosen topic, as in the pattern demonstrated in:

(1) A1: **Well** Margie, I'm glad you escaped that committee, I was gettin' worried about you, I though you were going to say yes.

Well used in this sense usually occurs after a pause of at least five seconds, and seems to be an attention getter, a way of saying, "I want to say something." This is repeatedly evinced in the following example:

(2) A2: [I need my other sunglasses.
A1: [**Well**, that turned out to be a pretty fine meeting. I thought it was pretty good.
A2: Pass me my purse please? It's right there?
A1: This is a <u>purse</u>?
A2: I know there's a direct relationship between weight and age in purses . . . size purses, so . . .
A4: And also, how many children you have.

A2: Yeah. Cept I'm past the point where I carry=
A1: └ **Well** . . .
A2: =anything for the children . . . Just Certs for=
A1: └ **Well**, ah
A2: =Sunday. Yeah, **well**, **well**, . . . it's=
└**Well**, ah, **well**, └ **well**,
A2: =awfully warm in here. Maybe we need the A.C.
A1: A.C. . . . this is a whole new concept, here, A.C. Ma:n.

In this case, two interlocutors have made simultaneous bids to initiate topics. A1 uses **well** as an attention getter, followed by the topic suggestion "That was a fine meeting." In the interchange that follows, the sunglasses/purse topic must take precedence, because it revolves around a need. But while A4 ratifies A2's purse topic, A1 tries to return to his topic, shown by his repetition of **well**. A2 responds imitatively, calling his bluff. He has her attention, where's his topic? A1 frames yet another **well** before giving up and responding to A2's next topic.

Another way of looking at the repetition of **well** in this instance is that it is indicative of topic search. The speaker feels responsibility for initiating an interesting topic, but has difficulty immediately coming up with one. At any rate, except for A2's interjection, the particle use in this passage is not so nearly connected to response as it is to initiation. The three sources furnished eighteen examples of **well** used as initiator. This is 8% of total **well** usage in the transcripts, not an insignificant amount. What is quite significant is that speaker A1 furnished 11 of these examples, 19% of his own and 5% of the total **well** usage in the transcripts. This style is in direct opposition to that of B2, as well as the style of the male family authority figure, B1, who chose both speaker and topic with an imperative:

(3) B1: Tell everybody about your interview.

Well in Discussion Summation

In this study it may be seen that **well** is also used by respondents to preface answers where previous answers by the respondent/s have been insufficient. In the following case, the final answer is an adequate, preferred answer, if only for the reason that the questioner is finally satisfied with the response.

(4) A2: Now why is it that that little church has a deaconess?
A4: It's not that little.
A2: No, it's smaller than we are, though.
A4: └There's four hundred members.
A2: Yeah,
A1: Four hundred.
A4: Which is one of the bigger . . . it's about the third biggest church in the conference.
A2: Huh. **Well**, why does it have a deaconess, anyway?
A3: [Probably because it ah . . .
A2: [Is it a decision of the . . . no.

A4: **Well**, they are far-reaching people, and they have good ideas, decided to . . . begin expanding their staff it's what we need to do.

Speaker A2 is requesting information and it is insufficiently given. She persists, reissuing the question with **well**, a use which indicates the unacceptability of the previous answer. She even attempts to answer the question herself. But **well** prefaces the answer which is finally acceptable. We might note here the desire of conversationalists to come to resolution when unanswered issues surface. The interlocutors that tend to resolve issues are those with the most authority, and in this speech act they may preface their pronouncements with **well**.

The following example from Text B demonstrates the same desire for resolution, with attempts by the male and female family authority figures to bring a political discussion to a satisfactory outcome.

(5) B2: Carolyn Warner was [the head of education. It=
B8: [Oh yeah, that's right.
B2: =was NOT Rose Mofford.
B9: Is education better or worse than being a car dealer?
B3: [laughs]
B1: Worse.
B9: If you're gonna compare, jeez. You make education sound bad.
B2: **Well** honey, that's not what she was. She was a secretary . . . Carolyn Warner was board of education.
B1: **Well**. Mecham was alright. Cept everybody got all excited.
B2: And Rose Mofford was secretary of state.

This portion of the extended discussion is highly argumentative, with the authority figures each attempting to resolve what they see as the key issue. B2 resolves an issue of pre-candidacy political posts, while B1 makes a competency evaluation. Both interlocutors use **well** to preface their position statements, but B2 uses it in a hedging way, softening the blow of her disagreement with the male authority figure, while B1 uses it slightly emphatically in a bid to conclude the discussion in a position of power. Note that the woman then tags his statement with a "power rider."

Interlocutor Power Differentials

I believe that the way **well** is used in the three conversations of this study reflects three varying social power relationships. I will discuss them in the order of increasing power differentials. Text C does not have any instances of **well**-prefaced topic initiation or resolution. Speaker C1, a native speaker, has reduced her rates of **well**-prefaced interruptions and other usages. This may be a result of foreigner talk modifications, but it may also be a result of equal member social status as graduate students.

In Text B, we have an ostensibly controlling male family authority figure whose discourse is sprinkled with bald assertions, imperatives, and a **well**-prefaced discussion resolution. The female family authority figure uses **well** in the hedging way discussed by Lakoff, softening disagreement, appeasing others in the family, and deliberating other decisions. Yet the power structure in this family is not unchallenged. The father's assertions are questioned, his imperatives must occasionally be repeated, and in this case his discussion resolution failed to close the discussion. While she rarely uses male discourse tactics, the mother is a strong influence in the conversation. There are several reasons for the shape of discourse here. There is a certain amount of permissive openness to the conversation because of the security of a very strong familial bond, and now that the children are adults, they take advantage of it. But more important is the aforementioned variety of family members' social standings and opinions, which make polarity more probable.

Comparatively, Text A is the most ideologically based of the conversations. The group is socially congruent, and has a titular head who also dominates the conversation. This is also attested by his use of the particle **well**. He uses **well** at a higher rate than his discourse partners, uses more **well**-prefaced topic initiations, and prefaces discussion resolutions with **well**. While in example (2) one of the speakers calls attention to his use of **well**, the purpose is not to question his right to initiate a topic at that point, but his failure to carry the process through. The frequency of usage may be attributed to a form of solidarity politeness, but if this is the case, the **well** is merely masking an authority subtly acknowledged by all the interlocutors.

None of the conversations used in this study were considered unusual by any of the participants. Nor was any participant considered overbearing or domineering. This is because language is so intertwined with our socialization that we are not aware of our own presuppositions until they are called to our attention. It is not my purpose here to point an accusing finger at those who unconsciously display dominant discourse behavior. Power in discourse at times serves an important purpose: we need leadership and evaluation, and if topics were never initiated, conversations would never get off the ground. Besides this, knowledge of discourse can be a source of empowerment. Like Fairclough, I seek to raise awareness of discourse behavior on every social level. While we may want to preserve our linguistic individuality, our chances of success will increase in combination with the bilateral understanding that study of discourse brings.

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VII

HISTORICAL LINGUISTICS

SHOULD HISTORICAL EXPLANATION FOLLOW FORM OR FUNCTION?

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To analyze the historical development of a language, is it better to start with a specific morpheme and study its different outcomes, or is it more fruitful to begin with a general notion and move to specific forms? I find that the answer varies according to what is studied. With conditions, it is best to start with general semantic notions. But rather than conduct a debate on form vs. function, it is more useful to examine what kind of information can be extracted from form and what can be learned from the study of function. In the process, we will note that it is not always possible to keep form and function completely separate.

Let us begin with the Latin form sī 'if'. The etymology of this word shows its original syntactic function, for it was the locative case of the older proto-Indo-European demonstrative *so- (Glare 1985: 1752). In Classical Latin, there were derived forms and variants, for the adverb sīc 'in this way' was derived from sī and the deictic particle -ce, and forms like nisi 'if not' and seu 'or if' show variants of sī. The compound nisi 'if not' has a short vowel instead of the long ī of sī, and seu 'or if' has se, which is the same as the cognate in the Volscan language (Tucker 1973:167, 222). The negative form of sī varies according to function, since nisi negates an entire condition whereas sī nōn negates a single word (Hale 1978:305). We thus see that in Latin we cannot analyze form in complete isolation from function.

In Old French, there was a distinction between the form of the conjunction se 'if', from Latin sī, and the adverb si, from Latin sīc. The conjunction se, which could take the form s' before a vowel, might (1) express an adversative idea, (2) introduce a direct or indirect question, or (3) begin a hypothetical clause. In contrast, the adverb si could (1) occur in a clause that introduces a consequence by que, (2) express opposition, (3) introduce a main clause, or (4) begin sentences that express orders or wishes (Moignet 1976:432). But here, the functions help analyze the history of the forms, for Latin sī and sīc would normally both yield French si, just as

Latin amīcum 'friend' produced French ami. The Old French se 'if' must come from the Vulgar Latin variant se, which is exemplified in this line from the Vitae sanctorum merovingicae (Díaz y Díaz 1974:186):

> ...et pavibat, se ei innotesceret, consensum ei minime darit.

> '...and he feared, if he became known to her, she would not give him her consent.'

Once again, we cannot accurately trace the history of the form without examining the function.

The form se 'if' predominated until the sixteenth century. However, the variant si 'if' had appeared as early in Old French as the Oaths of Strasbourg (842 AD), where it was perhaps a latinism (Bloch 1964:509). Furthermore, the form si was the only variant used in Anglo-Norman and in some dialects of Western France (Bloch 1964:509). Thus, the existence of si from Latin sīc, the latinizing style of the written language, and the influence of dialects contributed to the replacement of se by si. Consequently, the change from Old French se to Middle French si was not the result of a phonological rule. Here, too, the history of a form cannot be studied in isolation from external influences like the lexicon and sociolinguistic factors. Thus, a useful by-product of examining the history of a form is the identification of elements that affect the form.

Let us now turn our attention to the function of conditions. To collect data from a single speaker of Latin, I gathered all the conditional sentences from Dē Arboribus, On Trees, a book on agriculture written by Columella in the first century. In sentences containing if-then conditions, the book gives many tips on how to plant vines and trees. I counted 51 sentences with conditions introduced by sī. But these sentences were by no means evenly distributed over the possible types of Latin conditions, which Harris (1986:266) summarizes as real, potential, and unreal in past and nonpast time. Because the text aims to instruct, it has many potential clauses in the future and some real conditions in the present indicative, but none of the if-clauses are contrary-to-fact, or unreal. In 19 sentences, the verb in the protasis is in the future, and, in 17 other protases, in the future perfect. In 17 sentences, the verb in the apodosis is in the future imperative, a rare form in Classical Latin, which prefers the present imperative. In 17 other sentences, the verb is in the future indicative in the apodosis. The future perfect occurs in the protasis of 17 sentences, and the hortatory

perfect subjunctive is found in one apodosis, but past forms do not generally play a role in the condition or the conclusion. When the future perfect occurs, the if-clause may serve a temporal function, as indicated by the translator's French version of the following Latin sentence (Goujard 1986:35):

Arborum et fructicum docebimus cultum, si prius uitibus praeceperimus. 'We will teach about the cultivation of trees and bushes, if we'll have first discussed grapevines.'

Nous enseignerons la culture des arbres et des arbrisseaux, après avoir d'abord traité de la vigne. 'We will teach about the cultivation of trees and bushes after having first discussed grapevines.'

By now, some of the difficulties of studying a function are clear. Since functions may overlap, an if-clause can serve a temporal rather than a conditional function. Like words, functions are stretched stylistically as authors use those parts of the grammar that best convey their intent. In addition, a language often has several ways to express a single function. For instance, Latin can express a condition by a participle, an ablative absolute, or an indefinite relative clause. Thus, in contrast to forms, functions are not discrete. For this reason, functions are initially identified by forms, as I have identified Latin conditional sentences by the protases beginning with sī. Once again, we observe that form and function cannot be studied in complete isolation from each other. For words like nouns, verbs, and the adverb sīc 'thus', which are somewhat easy to isolate, an approach through form is the most useful path to take. But for a conjunction like sī, which must serve as a conjunction in the context of two clauses, a study of function is required.

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DEFINITION OF THE OLD ENGLISH GENDER SYSTEM

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1.0 Introduction

The literature and research of the nineteeth and twentieth centuries state that the gender system in Old English (OE) was a functioning one of grammatical gender--the system inherited from Indo-European (IE) through Germanic (GMC). Grammatical gender was a system of concordance used in OE to identify the relationships existing between a noun and its modifying adjectives and pronouns--demonstrative, personal, and relative (except *þe*). In other IE languages each noun carried a specific marker that defined the noun class it belonged to: often a stem vowel, and a set of case suffixes for each noun class, with each set having a series of inflections for each gender. Because of multiple sound changes that occurred first in GMC and others which occurred later on in OE, the stem vowel disappeared prior to written OE. No marker existed as part of the noun which could indicate gender--masculine, feminine, or neuter (m., f., and n.). Correct gender assignment for the noun was necessary so that modifying pronoun and adjective forms would match the gender of the nominal they modified in order to satisfy concordance requirements. Word order in OE was not as rigid as in Modern English so that oftentimes, particularly in poetry, modifying elements were separated some 'distance' from the governing noun. Under these conditions a functioning concordance system was necessary as the poetry was an oral poetry primarily.

This paper completes the two-part analysis of the gender system of Old English. The data presented today differ from those presented before in the character of the inflections (Part I, Collins 1990). Analysis of these data provides additional support for the conclusions offered in Part I, as well as providing support for more extensive conclusions. The same dictionaries and texts were used as data sources for both parts of the study.

2.0 Background for Current Paper

The research reported in the previous paper showed that the system of grammatical gender was in the process of being replaced by a gender system based on natural gender instead of one based upon noun classification, a system dependent upon the structure of the noun. The process resulting in the change-over was that of gender alternation. Alternation is defined as the alternate use of the m., f., and n. pronoun or adjective forms

with the same noun root on different occasions. The evidence to support these conclusions is very clear. A sizeable number of nouns were assigned neuter gender that alternated in use with the inherited m. and f. genders. The newly acquired neuter gender most often matched the natural gender of the referent--an idea, a place, or a thing.

1) ad m. > mn. 'funeral pile'
   candel f. > fn. 'candle'

2.1 Furthermore, gender matched the actual sex of the referent for human beings, their occupations and relationships, and animals including birds, where differentiation of natural sex was either required or evident, (except for the inherited neuter nouns of wif, maegden, cild, and bearn where grammatical gender was contrary to fact). Although the gender of the aforementioned nouns did not change to match the natural gender of the referents, some, such as cealf n. > nm. 'calf', did. This, of course, is true alternation as the meaning remained the same regardless of gender. The separate but related forms which were used to indicate sex differences were not the result of gender alternation. The requirement for identical meaning for the alternating forms was lacking.

2) guma m. 'man'
   wer m. 'male being'
   cniht m. 'boy'
   maeg(e)ð f. 'maiden'
3) assa m. 'male ass'
   assen, assmyre f. 'female ass'
4) cyning m. 'king'
   cwen f. 'queen'
   snoru f. 'daughter-in-law'
   ciefes f. 'concubine'

2.2 Where the occupation or the description of the referent could apply to individuals of either sex, the gender assigned was determined according to the natural sex of the referent.

5) domne mf. 'lord, nun, abbess'

2.3 For those nouns with asexual referents, gender alternation illustrates the confusion and disarray present in the gender system in Old English and the resultant instability of the system.

6) ealu mn. 'ale'
   ecglast mf. 'sword's edge'
   lac nf. 'play'
   folm, folme f., folma m. 'palm, hand'
   graeft mfn. 'graven image'

2.4 The instability of the OE gender system is further demonstrated by the gender alternation that occurred when a simple noun was used as the last element in a compound. Compound nouns were to be assigned the gender of the last noun in the compound. However, this rule was frequently ignored.

7) land n. 'land' and
aehtsland n. 'territory' vs.
maestland f. 'land yielding mast' and
aelmeslond m. 'land granted in frankelmoigne'
8) waestm mn., waestme f. 'fruits' vs.
eordwaestm f. 'fruit of the earth';
frumwaestm mf. 'first fruits';
unwaestm mfn. 'a bad plant, a weed'
9) cniht m. 'boy' vs.
burcniht n. 'eunuch' (literally 'bower youth')

In land (7 above) even though grammatical gender already matched natural gender, confusion was such that the compounds were given all genders. With waestm complete gender confusion prevailed for the simple form as well as for all the compounds. In cniht (9 above) gender matched the natural sex of the referent, but in the compound it matched that of bur.

2.5 Further evidence to support the conclusion that the inherited gender system was moribund is the fact that in those nouns derived from verbs and adjectives, where grammatical gender could not possibly pertain, gender vascilated back and forth. This is illustrated particularly in 13 below where all three nouns are abstract and each has a different gender.

10) gang m. 'passage, way' < +gan 'to go'
+gang n. 'passage/lapse of time, hap' < (the same)
11) genge n. 'troop' <
+genga m. 'fellow traveller' < gengan 'to go'
aeftergenga m. 'successor' <
12) +agen n. 'property' < agen adj. 'property' < agan 'to own'
13) dysig n. 'folly' < dysig adj. 'foolishness'
fulla m. 'fulness' < full adj. 'full'
bealdnes f. 'boldness' < beald adj. 'bold'

3.0 Current Study

The data for the current study consist of nouns derived from verbs, other nouns, and adjectives. These data include two types of suffixes not analyzed earlier--the meaning-gender (M-G) suffix and the generic-noun (G-N) suffix. Two different types of successive suffixes were placed onto various roots in order to form new nouns.

3.1 The first type of suffix to be discussed is the M-G one, those such as -nes, -els, or -had. This class of suffix

immediately followed the root. It was the only one which had both meaning and gender associated with it. Each M-G suffix provided the only nominal cue for gender extant in OE. The various meanings signalled by this class of suffixes defined the character of the root carrying one of them: abstract, state or condition, diminution, agency (human and tool), and concrete. Each suffix also had a specific gender associated with it which was used regardless of the gender assigned the root when it carried case/declension (C-D) inflections only (discussed in detail in Part I). The specific gender assigned to the M-G inflection itself determined the gender of the noun regardless of the root and the derivation of the root. It could well differ from the gender associated with the same root when only C-D inflections were used.

14) idel n., idelnes f. 'emptiness'
lad n., ladscipe m. 'misfortune'
+ligere n., +ligernes f. 'concubinage'
maegendrymm m., maegendrymmnes f. 'glory, majesty'

3.2 The second suffix that immediately followed the M-G inflection was the C-D one. According to various OE grammars written since AElfric, this inflection also indicated the grammatical gender of the nominal it was attached to. However, the C-D inflections were so affected by multiple sound changes that they could not indicate either case or gender. The same C-D inflectional form often represented more than one case and more than one gender in more than one noun declension (cf. Collins, 1984, 394). The stem vowels, which in the other IE languages indicated noun declension and gender, had all been eliminated through various sound changes so that neither gender, declension, nor case was indicated by the noun form itself. Because of this, gender in OE could be indicated only by a secondary system of gender marking, i.e., either using pronoun and/or adjectival forms or by context (cf. 24 and 25 below). However, this marking only matched the noun gender, and was not the determiner of gender. In other words, the pronoun and adjectival marking only followed what was remembered about noun gender by the speaker.

3.3 The M-G suffixes defined what the character of the noun they were attached to would be, e.g., a change from concrete to abstract or diminutive. They determined the noun's gender according to the gender of the suffix, and changed the root from a verb or adjective one to a noun root. For instance, the -ere m. suffix indicated the noun was an agent, while the root meaning indicated the specific kind of agent. The character changes caused by M-G suffixes contrast to those brought about by C-D inflections where case and number, as well as (according to current literature) gender and declension were indicated. C-D inflections did not, nor could they, define or affect the character of the noun.

4.0 Types of Gender Alternation
There were five different types of gender alternation which occurred with these M-G suffixes. Each is discussed in detail below. Only those suffixes exhibiting alternation are discussed.

4.1 The first type of alternation to be discussed is that involving nouns having the same suffix, but different genders.

4.1.1 -dom m. and -had m.: These suffixes formed masculine, state or condition, abstract nouns from nouns and adjectives.

15) ricedom n. 'kingly rule'
cynedom m. 'kingly rule, kingdom'
16) abbodhad m. 'abbatial rank, dignity'
aeðelinghad n. 'princely state'

4.1.2 -ung, -ing f.: These suffixes were used to form feminine abstract nouns from nouns and adjectives, but especially from the second class of weak verbs but also some from the first class of weak verbs. Alternation occurred with both suffixes.

17) andettung m. 'confession'
feorðung m. 'forth part, farthing'
+ambidung m. 'expectation'
wordlung n. 'talk, discourse'
18) hysebyrding m. 'the bearing of a male child' < byrd f. 'birth'
ymbtrymming m. 'fortification' < ymbtrymian II 'to fortify'
wemming m. 'defilement' < wemman I 'to defile'

There was also an -ing m. suffix. Both the -ing m. and the -ing f. suffixes were used to derive nouns from other nouns and adjectives. The difference between the two suffixes was that the feminine -ing suffix was used to derive abstract nouns, while the masculine -ing suffix was used to form concrete nouns, particularly patronymics and dimunitives. No occurrences of alternation between -ing m. and -ing f. nouns were found, although gender alternation occurred with -ing f. nouns (cf. 18 above.

4.1.3 -scipe m.: This suffix was used to form masculine abstract nominals from nouns and adjectives.

19) nahtscipe f. 'worthlessness'
unarodscipe f. 'cowardice, remission' vs.
arodscipe m. 'energy, boldness'

4.1.4 -ling m., -incel n.: These two suffixes formed nouns with a diminutive meaning from nouns denoting persons and things and from adjectives. -ling m. is a varient form of -ing m. The

-l came from nouns like the patronymic aeðeling from the adjective aeðel or the diminutive lytling from the adjective lytel (cf. Wright, 317). The -l was reinterpreted as part of the suffix and not of the root.

20) frumbyrdling n. 'youth'
frymetling f. 'young cow'
goldmaestling n. 'brass' (literally 'a little gold mix')
vs.
geongling m. 'youth'
21) wilnincel f. 'little female slave' vs.
peowincel n. 'young slave'

The gender assigned to frymetling and goldmaestling matched natural gender as it did for wilnincel. However, the use of n. gender with frumbyrdling suggests confusion. It should have been assigned masculine gender. This could well have been an attempt to follow a poorly understood system of grammatical gender and concordance. The meaning 'youth' is the same type of meaning found associated with human nouns with inherited neuter gender, as in bearn n. 'child, descendent' and cild n. 'child' where either the referent was considered too young for sexual differentiation or such a distinction was not considered necessary.

4.1.5 -end m., -ere m., -estre f.: These suffixes all form nouns of agency. -end was used to form nouns of agency from the present participle; -ere was used to form agent nouns primarily from nouns and later on from verbs; -estre was used to form agent nouns from verbs and occasionally from nouns. The gender assigned the last two suffixes was based on natural gender. Instances of alternation within the suffix -ere were not found, i.e., -ere f. or -ere n. However, -ere m. could indicate both human agents and tool agents.

22) ari(g)end mf. 'benefactor, benefactress' (according to natural gender)
swelgend mfn. 'whirlpool' (an agent/tool)
eowestre mf. 'sheepfold'
23) baecestre fm. 'baker'
waescestre fm. 'washer'

Feminine nouns such as (23 above) were extended to male referents when males assumed these occupational roles. The appropriate gender change was manifest only in the secondary gender-marking system. Sometimes context was the only gender marker (24 below).

24) Iobinus [a male] waes min waescestre. Dialogues of Gregory 1900, 276, 1-14
[Jacob was my washer]
25) He waes lufigende his waescestran [a female] swa swa his

agen swuster...þaþa hine geseah seo his waescestre
Dialogues of Gregory 1900, 276,1-14
[he was loving his washer just as his own sister...when she, his washer, saw him]

4.2 The second type of gender alternation is that which occurred between two M-G suffixes with the resultant nouns having the same meaning.

4.2.1 -aþ, -oþ m.; -þo, -þu, -þ f.: The masculine suffix was used to form abstract nouns derived from second class weak verbs and nouns, while the feminine suffix was used to form abstract nouns derived from adjectives. However, these suffixes became confused as did the derivation history in OE, and it became difficult to differentiate between them. Gender alternation occurred. In the case of nouns like dugud and frymd, it is difficult to determine whether they belonged to the -oþ m. group or to the -þ f. group. The sound similarity existing between the two suffixes could cause confusion.

26) dugud, dugod fm. 'the nobility, strength, power'
drugod f., drugoda m. 'drought'
frymd fm. 'origin'
27) fedels, fedesl m.; feding f. 'vittles, a feeding'
28) geogudhad m., geogudhadnes f. 'adolescence'
29) haedendom, haedenscipe m.; haedennes f. 'heathenism, pagenism'

4.2.2 -ling m.; -ung fm. (m. in Northumbrian, f. in West Saxon.) This, too, is alternation occurring between two M-G suffixes, (for derivation of -l in -ling, cf. 4.14 above).

30) feordling m.; feordung fm. 'fourth part, farthing'

4.3 The third type of alternation found in OE is that among nominals carrying C-D inflections and those carrying M-G inflections, with the forms having the same meaning.

31) swelg n.; swelgnes f., swelgend mfn., swelgendnes f. 'whirlpool'
32) swic n., swice m.; swicung f., swicdom m. 'treachery'
33) camp mn; campdom, camphad m.; campraeden, campung f. 'warfare'
34) aeswic m.; aeswicnes f., aeswicung f. 'offence'
35) wrixl nf., wrixle n., wrixla m.; wrixlung f. 'change'
36) druncen, n. (a past participal substantive to which C-D suffixes are added); druncenhad, druncenscipe m., druncennes f. 'drunkenness'
37) doc m.; docincel n. 'bastard'
38) seht mn.; sehtnes f. 'agreement'
unseht mnf.; unsehtnes f. 'misfortune'

39) maegden n.; maeg(e)ð f. 'maiden'

4.4 The fourth form of alternation that occured in OE was the use of four nouns as the last segment in compounds, each noun so used having a generic meaning. Each, in theory but not in fact, was associated with an immutable gender. Gender alternation did occur (cf. 4.45 below). The use of the generic noun in the compound resolved any confusion about which gender to assign to the resultant compound. Regardless of the derivation, gender, meaning, and the noun declension of the first segment of the compound, the compound received the gender of the last segment of the compound. The meaning of each of these Generic-Noun (afterwards G-N) suffixes was restricted to a single meaning. The other multiple meanings associated with these words when they were free-standing, simple nouns were not applicable. In these compounds the meaning of the first segment of the compound give specificity to the generic meaning of the last segment.

4.4.1 -cynn n. 'a kind of something' (the first segment specifies the 'something'); the nouns created were animate nouns referring to plants, trees, human beings and any other animate referent; and inanimate nouns referring to concrete things or to abstract ideas such as lineage and behavior.

40) accynn n. 'a kind of oak'
beancynn n. 'a kind of bean'
crogcynn n. 'a kind of vessel or jar'
omcynn n. 'a kind of human being--corrupt'
rihtcynn n. 'a kind of lineage--legitimate'
rihtcynecynn n. 'a kind of family--legitimate and royal'
sigorcynn n. 'a kind of human being--victorious'
treowcynn n. 'a kind of tree'
waepnedcynn n. 'a kind of human being--male'
wyrtcynn n. 'a kind of plant'

4.4.2 -beam m. 'a kind of tree'. The first segment specifies the kind of tree.

41) cirisbeam m. 'cherry tree'
cistenbeam m. 'chestnut tree'
firgenbeam m. 'mountain tree'
gorstbeam m. 'furze bush'
hnutbeam m. 'nut tree'
morbeam m. 'mulberry tree'

4.4.3 -treo(w) n. 'a kind of tree'. The first segment specifies the kind of tree.

42) boctreow n. 'beech tree'
fuletreo n. 'black alder'
maestentreow n. 'a tree yielding mast'
plumtreow n. 'plum tree'

ulmtreow n. 'elm tree'
wintreow n. 'a grape vine' (literally, 'wine tree')

4.4.4 -wyrt f. 'a kind of plant'. The first segment specifies the kind of plant.

43) beowyrt f. 'beewort, sweet flag'
ceasterwyrt f. 'black hellebore'
lungenwyrt f. 'lungwort'
naedderwyrt f. 'adderwort'
sperewyrt f. 'spearwort, elecampane'
waeterwyrt f. 'water starwort'
wuduwyrt f. 'a plant that grows in the woods'

4.4.5 Gender alternation of the type described in detail (in Part I) occurred among this group of G-N nouns. However, only six compounds by actual count were found to be involved in gender alteration (not six instances of usage). This sparcity is not surprizing--extensive use slows change.

44) fleahcynn m. 'a kind of fly'
martyrcynn m. 'a kind of human being--a martyr'
45) cederbeam nm. 'cedar tree'
46) mapultreow m. 'maple tree'
palmtreo(w) m. 'palm tree'
47) liferwyrt n. 'liverwort'

Only the gender assigned to martyrcynn matched that of natural gender. However, the fact that neuter gender was assigned to cederbeam, when coupled with all the types of alternation discussed above, suggests the beginnings of a system change to natural gender. The other four compounds in this group suggest continuing confusion regarding which system is prevailing and which gender should be assigned. This confusion ultimately resulted in a total restructuring of the entire gender system.

4.4.6 These G-N suffixes are quite different from the other suffixes discussed above in the way in which they form compound nouns. Two of the four, -wyrt and -cynn, are used differently from -beam and treo(w). -cynn n. was used to form compound nouns for plants, things, abstract ideas, and human beings and animals (cf. 40 above). -cynn can be said to have been the all-purpose suffix. -wyrt f. was used to form compound nouns restricted to the names of plants exclusive of trees. -beam and -treo(w) were used only to form compounds for tree names (cf. 41-43 above). The use of these suffixes made gender selection easier. Because each had a specific gender assigned to it, the speaker could use the gender associated with the suffix noun and not have to know the gender of the first noun of the compound. Furthermore, he could satisfy the requirement for concordance simultaneously.

4.4.7 The analysis of the gender used for plants including trees is most interesting. Of the 464 nouns for all plants, 260 (56%) were associated with the feminine gender, an IE trait. Gender for the remainder of these nominals was divided among m., n., and alternating.

Of the 99 nouns for trees, 16 (16%) were compound nouns formed with -beam m.; 24 (24%) were those formed with -treo(w); 1 (1%) was formed with -cynn; and 10 (11%) showed alternating gender. 55 (48%) of the 99 nouns for trees were assigned case endings only.

Of the 365 nouns for plants (which excluded names for trees), 41 (11%) of those assigned case inflections only were given n. gender. 67 (18%) were assigned m. gender; 180 (49%) were given f. gender; 60 (17%) of nouns for plants, exclusive of trees, were formed with -wyrt which was assigned f. gender; 17 (5%) of the plant nouns showed alternation.

Of the 240 f. nouns for plants (excluding trees), 180 (75%) occur without -wyrt, while the 60 or (25%) these nouns were formed with -wyrt. For 1/4 of them to take the G-N suffix indicates the efficacy of the suffix in gender selection.

4.5 The fifth type of alternation occurring in OE which involves nouns with M-G suffixes is a very different kind of alternation from those discussed above. Here an entire compound alternated with another compound, both having the same meaning. Gender is irrelevant when this type of alternation occurs. This further outlines the instability extant in the system.

48) elebeam m. 'olive tree'
    eletreow n. 'olive tree'
49) ficbeam m. 'fig tree'
    fictreow n. 'fig tree'
50) cwicbeam m. 'aspen tree'
    cwictreow n. 'aspen tree'
51) acbeam m. 'oak tree'
    actreo(w) n. 'oak tree'
    accynn n. 'a kind of oak tree'

4.5.1 In a certain group of nouns what appears to be alternation occurred. However, analysis reveals this was actualy pseudo-alternation. The raising of the root vowel in these nouns (which had the same meaning) suggested there was a relationship between vowel raising and gender alternation. However, there was no association at all between the two. Although a raised vowel could occur with any gender, no consistent patterning of association existed.

52) aetgar m. > aetgaere n. 'dart'
    beodsceat n. > beodscyte f. 'towel'

burgsael n. > burgsele m. 'house'
ciricbraes f. > ciricbryce m. 'sacrilege'
dolgswadu f. > dolgswaed n. 'scar'
dal n. > dael m. 'division'
hraca m. > hraecung f. 'clearing of throat'

5.0 Conclusions

A knowledge of gender was required by speakers of OE in order to satisfy the language requirement for concordance between a noun and its modifiers. When, because of earlier and ongoing sound changes, nouns lost their stem vowels and C-D inflections no longer indicated gender clearly and unmistakably, concordance was also affected. A new gender system was needed so that concordance requirements could be met. To meet this need, the development of a new gender system began, one where a noun was assigned the natural gender of its referent. Sometime in Middle English this system would eventually replace the inherited but non-functioning one of grammatical gender. The analysis described above provided the following conclusions.

1) Throughout the OE period grammatical gender was in the process of being replaced by natural gender, a system based on biological factors instead of on a noun classification system defined by the structure of the noun.

2) Gender alternation occurred because speakers no longer knew which gender to assign to a noun. The presence of gender alternation indicates the instability and the confusion present regarding gender. It was how speakers coped with earlier sound changes that affected the noun structure and, therefore, nominal cues for gender.

3) The prototype for the development of a system based on natural gender already existed in the language: the large number of nouns for human referents which already had matching gender.

4) Another mechanism also was used to solve the gender assignment problem. Speakers of OE made extensive use of Meaning-Gender and Generic-Noun suffixes. Their use eliminated the problem of gender assignment insofar as the root of the noun was concerned. The gender associated with each of these suffixes was available for use with any noun given one of these suffixes.

5) M-G suffixes differed from C-D suffixes in that they defined what the character of the noun they were part of was, determined gender according to that assigned to each suffix, and changed the character of the root they are added to, e.g., from concrete to abstract, and from verb or adjective root to noun root.

6) C-D suffixes could neither define nor change the character of the noun they were a part of, nor in most instances indicate gender.

7) Gender was oftentimes expressed only by context.

8) Although the use of the Generic-Noun suffixes was a temporary solution to the problem of gender and noun concordance in OE, it proved to be extremely productive in the creation of nouns. -cynn was the only all-purpose suffix: It was used to create nouns for all kinds of referents--man, trees, plants, things, and ideas. -beam and -treo(w) were restricted to creating names for trees, while -wyrt was restricted to creating nouns with plant referents (excluding trees).

The present study reveals that the inherited system of gender in Old English never evolved into a stable system, let alone one that was purely and uniquely an Old English system. Time and history prevented this. Extensive and continuous dialect interaction with resultant sound change never permitted the Old English gender system to become stable. No dialect from 440 A.D. onward ever became the dominant dialect and, subsequently and consequently, the standard dialect in Old English, because its speakers never dominated politically.

6.0 List of Symbols

+ = the noun appeared with the prefix ge.
± = the noun appeared both with and without the prefix ge-. Presence or absence of ge- did not affect meaning.

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THE MULTIVALENCE OF HITTITE H

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The Hittite syllabary has some dozen signs which are transcribed using an h with a curved line beneath it, the h being either syllable initial or syllable final (Couvreur 1937.48). We are concerned here with what the phonetic values were of this h. Most discussions of it have been within the frame of the laryngeal hypothesis. It is rather our purpose to examine the other evidence for its values so that what may be determined in this way may be used as a better foundation for comparative work involving Hittite.

Among previous treatments we mention only Couvreur (1937), Kronasser (1966.94-100) and Puhvel (1965), all of which are valuable contributions. We believe that additional evidence can now be brought to bear on the problem.

The phonetic context involves velar spirants, pharyngeals and glottals. The pharyngeals [ḥ] and [ˁ] are the result of the addition of consonant ablaut H to oral or glottal consonants:

Velar	Plus H	Glottal
x	xH and ʔH > ḥ	ʔ
γ	γH and hH > ˁ	h

There are two lines of evidence: internal (to Hittite) and external (the witness of other languages); see Hodge 1972. The internal evidence consists of the dozen aforementioned signs and their usage. Strictly speaking, any conclusion as to their value involves other languages, in the first instance those from which Hittite borrowed the script. The latter was an early form of the Akkadian cuneiform system, borrowed by way of, or under considerable influence from, Hurrian. The dominant use of the h-signs in Akkadian was to represent Semitic [x]. Early usage did not distinguish between voiceless and voiced pairs. The Hurrians used a system of doubling intervocalically to indicate that the sound was voiceless. The Hittites borrowed this convention, without complete consistency, so that -hh- is voiceless and -h- is (usually) voiced. Couvreur identified these as [ḥ] and [ˁ] respectively (1937.264, 386), while Sturtevant thought they were [x] and [γ] (Sturtevant-Hahn 1951.17n22). The latter view has been the dominant one. (For a brief history of the script see Kammenhuber 1969.161-67, 173-79.)

In addition to the source of the script, there are two other types of external evidence: 1) other language transcriptions into and from Hittite 2) etyma in related languages.

Before taking up the matter of loans, we need to list some

of the languages involved and the presumed values of the consonants involved as they reflect the proto consonants.

Lislakh	x	γ	γH/hH	xH/ʔH	ʔ	h
Egyptian	x	ʕ	ʕ	ḥ	ʔ	h
Hebrew	ḥ	ʕ	ʕ	ḥ	ʔ	h
Ugaritic	ẋ	γ	ʕ	ḥ	ʔ	h
Arabic	x	γ	ʕ	ḥ	ʔ	h
Greek					ʔ	h

The values [x] and [γ] for Hittite h̲ are attested in Ugaritic transcriptions. Hitt. tudhaliya (PN), Ug. t-d-γ-l, Heb. tidʕal. Hitt. hayamuli (PN), Ug. x-y-m-l (Gröndahl 1967. 296, 275). These are also to be distinguished in Egyptian transcriptions. Here x̲ is used for [x] but ǧ may occur for [γ] Hitt. zithariyas (PN), Eg. ǧ3-ʔw-č-x-r-rʔ-y /ǧ-ʔ-č-x-r-r-y/. Hitt. tarhuntazitis (PN), Eg. tʔ-r-ʔ-g3-tʔ-č3-s3 /t-r-g-t-č-s/ (Helck 1971.17, 565, 207, 560). Another example of Eg. ǧ for [γ] is Hitt. sanhara (PN), Hier(oglyphic) Luw(ian) sá-ga-à-ra-s, Amarna sanxar, Eg. s-n-ǧ-r, Ug. ɵ-n-γ-r, GK. sagaras (Gröndahl 1967.302). Note that Ugaritic has ɵ, suggesting that this sound was in Hittite.

For the word from which we get 'Hittite' we have: Hitt. hatti, ug. x-t, Eg. x-t3 /x-t/, Heb. ḥittī ([x]?), Gk. khettaios. Greek, having no [x], used a velar stop, either k̲ (examples Puhvel 1965.84) or kh (above).

Hittite transcriptions of Egyptian use h̲ for both [x] and [ḥ]: Eg. n-b x-p-r-w r-ʕ 'Tutankhamon', Hitt. nibhururiyas Helck 1971.181). Eg. t-3 ḥ-m-t n-s-w 'the king's wife', Hitt. dahamunzu (Helck 1971.182).

In Egyptian one 'chief of the Hittite foes' was given as ʕ-g-m (Helck 1971.207). This has not been identified with any Hittite name, but it suggests that [ʕ] occurred in Hittite.

The comparative evidence offered here is restricted to LL (Egyptian, Semitic, Berber, Chadic, Omotic, Cushitic, Indo-European). Egyptian and Semitic provide most of the related etyma.

In Semitic [ʔ] and [h] are well known as causative/factitive affixes. The H̲ ablauts of these (see above) are ḥ (**ʔH̲) and ʕ (**hH̲), both of which are used as similar affixes (in our view the same affixes plus H̲), ḥ being the more common. E.g., Eg. 3-q 'to perish' (Fa 6), ḥ-3-q 'to plunder' (Fa 163), q-b 'to pour out' (Fa 277), q-b-ḥ 'to present libations' (Fa 277), p-r-ʔ 'to be issued (of supplies' (Fa 90), ʕ-p-r 'to equip' (Fa 41), š-3 'to order' (Fa 260), š-3-ʕ 'to begin (Fa 261).

In Hittite -ahh- has been identified as a frequent suffix of similar meaning (Sturtevant-Hahn 1951.124-26). Of the four above mentioned (ʔ, h, ḫ, ʿ), -ahh-, being voiceless, fits only ḫ. Unless there has been a merger of [x] and [ḥ], Hittite is thereby shown to have the value [ḥ] for ḫ. There are a large number of examples of the affix h in Hittite, both as prefix and suffix. (A prefix ha- has previously been postulated [T 120], but this corresponds only in part to our ḫ-.) It is the cognate forms in other languages which enable us to identify these ḫ's.

Prefix ḫ-: happin(aʔ)- 'rich' (T 165), from **(ʔH-)p-Nl. Eg. ḫ-f-n '100,000, a great quantity' (Fa 168): **(ʔH-)bH-Nl. Sem. *ḫ-p-n, G. hafana 'to take with both hands' (Les 227). Ch.*p-n 'to surpass' (J-S 257). Probably also happar 'price, trade' (T 162): **(ʔH-)p-lH. The base is **p-l 'to go out, produce fruit'. We take the basic form to include the r/n (**lH/Nl) and not be simply hap- (contra T 157).

hapallasai- 'to injure' (T 160): **(ʔH-)bH-l(-s), from **b-l 'to damage'. Eg. b-3 'to destroy' (Fa 77); Sem. *ḥ-b-l, G. ḥabala 'to ensnare, act craftily' (Les 223), Akk. balu: 'to destroy'. Ch. *bʔ-y 'to break' (**bH-l) (J-S 51). Cu. *bel- 'to break' (Eh 87.15). IE *wel- 'to tear' (**b-l) (W76), *bher- 'to cut' (W7): **bH-lH. **bH is posited for Hitt. -b- because **b would result in IE *w.

harpas 'harvest' (T181) and harpu- 'inimical' (T 182), both **(ʔH-)lH-bH, are from **l-b 'to pierce', with semantic developments including 'tooth', 'to bite', 'to seize (with teeth)', 'to attack', 'to cut into', etc. (Hodge forthcoming). Eg. ḫ-[3]-b 'catch (of fish)' (Fa 167). Sem. *ḫarb- 'sword'.

hatuka- 'frightful' (T 277): **(ʔH-)d-g. Eg. d-g-ʔ 'to look', d-g-3-t 'staring' (Fa 316): **d-g(-l-t). Sem. Ar. ḫadaja 'to stare, look sharply at' (W-C 162).

hurki- 'wheel' (T 303). Sem. G. ḫalaqa 'to become round', Ar. ḫallaqa 'to draw a circle' (Les 230). Base **l-g 'to go around' or **l-k 'to turn'.

Two Hittite/Luwian etyma with -ḫ may be mentioned: (:)-lahpa- 'ivory' (ʔ) /lahma- (possibly the same) (G-H 3.12). This parallels Akk. šinnu 'tooth'. The Egyptian for 'tooth' is ʔ-3-b-ḫ (revised reading) and for 'ivory' is 3-b(-w), both from **l-b 'to pierce' (see above and Hodge forthcoming). Hitt. lahpa- appears to be a metathesis of **labha- and to be from the same base. We have, then, **l-bH(-ʔH) > labḫa- > laḫba- and **l-Nb(-ʔH) > **lamḫa- > laḫma-. IE *leu- 'to cut apart' (W 36) has plain b, **l-b.

(:)lūha- 'light' (ʔ) (G-H 3.73). This is from **l-b(-ʔH), the base being **l-b 'to burn'. Eg. 3-b-w 'to brand' (Fa 2).

Sem. **l-b in Akk. labana:tu 'incense', *l-b-l-b in Tna. lä̈blä̈bä̈ 'flame', more frequently *l-h-b, G. lahaba 'to burn;, with -h- infix (see Les 308). Ch. *r-b-s 'ashes' (J-S 31): **lH-b(-s). The same base occurs in luk(k)- 'to grow bright' (G-H 3.74), IE *leu-k- 'light' (W 37), from **l-b(-k). The connection with the forms in -p- is unclear; see lappiya- 'fever' etc. (G-H 3.44-45).

Some examples where h is not analyzed as an affix are: hap(p)- 'to join, be joined to' (T 158). Eg. h-p-t 'to embrace' (Fa 168). Sem. Ar. haffa 'to surround' (W-C 187). IE *ap- 'to reach', Lat. apere 'to attach' (W 3) may go back to **ʔp, the others to **ʔH-p.

huis- 'to live' (T 264) and huitar 'animal' (T 269), from **ʔH-w-. Eg. h-w-w 'cattle' (Fa 165), sem. *h-w-y, Phon. h-w-ʔ, G. haywa 'to live' (Les 252). IE *aiw- 'life' (W 1). (See also Hodge forthcoming.) Note that h-w is the H ablaut of **ʔ-w 'to exist', Eg. ʔ-w 'exist' (Fa 11).

nah(h)- 'to fear' (G-H 3.338). Eg. n-h-ʔ 'to pray for', n-h-3 'to shake (?)' (Fa 136), Co. hnōhe 'fear' (Vy 306). Ber. *yikinihir 'to have in extreme honor' (Pr 3.266). Cu. EC *nah- 'to fear' (Sasse 1979.23).

pahs- 'to protect' (Sturtevant 1942.36). Eg. p-h-t-y 'strength, power (of king/god)' (Fa 93).

The value [x] for h is amply confirmed by comparative evidence. Some examples are: mahhan 'like, as' (G-H 3.100): **(Nb-)x-Nl. Eg. x-3-ʔ 'to measure' (Fa 183) **x-l(-ʔ), m-x-3 'to match, equal' (Fa 115): **(Nb-)x-l.) Sem. Ar. x-l-l V 'to be or come between' (W-C 252). IE *moi-n- 'in common' (W 40).

halliya- (a small animal) (T 131). Eg. x-3 'be young, little' (Fa 183).

ishiya- 'to bind' (T 384). Eg. s-x-t ' to weave' (Fa 243).

lah(h)uwai- 'to pour' (G-H 3.13). Eg. 3-x-t 'inundation season' (Fa 4), r-x-t 'to wash (clothes)' (Fa 152). Sem. Akk. rexu: 'to impregnate'. Ber. Tou. ləllwət 'to wash' (Pr 2.236).

The value [γ] for h is supported by a few cognates. Here one must have evidence from a language which retains [γ], such as Arabic or Ugaritic.

hupallas 'head-covering' (T 290): **γ-bH-l. Eg. ʕ-f-n 'to cover' (Fa 42): **γ-bH-Nl. Sem. Ar. γufratun 'cover, lid', γifa:ratun 'headcloth' (W-C 678; Les 58): **γ-p-lH. Also huppar 'dish, jar' (**γ-p-lH) (T 291), from the same base. Eg. ʕ-p-r-t (kind of jar) (Fa 42). (It is not clear whether γ or l is an

affix, so we reconstruct an ambiguous **γ-p-l.)

harhara- (a kind of vessel) (T 172). Eg. ʕ-3-t (stone vase) (Fa 38). Sem. *γ-l-l, Ug. γ-l-l 'to dip in', Ar. γalla 'to insert' (Les 60).

A very good example supporting the value [ʕ] for h is *hawi- 'sheep', Luw. hawi- (T 230 q.v.). Eg. ʕ-w-t 'small cattle' (Fa 39). Sem. Ar. ʕawa: 'to attain mature age (wolf, dog, fox)' (Hava 1915.511). Ch. **ʔ-w(-k)(*ʔa(w)ku, Newman 1977.27; cf. J-S 120), Ha. ʔawaakii 'goats'.

hilammar 'gateway' (T 243). Eg. ʕ-3 'door' (Fa 37). Probably connected with Sem. ʕ-l-y 'high'.

hurkel 'atrocity' (T 302). Eg. ʕ-3-g 'to thrash' (Fa 38). Sem. G. ʕallaga "to castrate, defeat', ʕəlgat 'genitals as trophy of battle' (Les 60). Here ʕ- is an affix.

Several cognates have [h] corresponding to Hitt. h: halwammar 'happy laughter' (T 138), Eg. h-r-w 'pleasing' (Fa 159). hapupu- (a bird, perhaps 'owl') (T 167), Eg. h-b(-y) 'ibis' (Fa 158) - loaned into English from Greek.

Tischler puts together Hitt. hali- 'watch', Luw. halli- 'day' Hier. Luw. hali- 'day, time' (also an instrument for measuring time) (T 129). Comparative evidence indicates that we are dealing with two different bases, **x-l 'to guard' and **h-l 'day, light'. For **x-l we have Sem. S. Ar. x-l-w 'to save', Ar. x-w-l 'to take care of', G. xallawa 'to keep watch' (also h-, ḥ-) (Les 262). (Eg. ḥ-3-y 'protector' [Fa 16] could be from **xH-l.) For **h-l we have Hitt. mehur 'time' (G-H 3.239): **(Nb-)h-lH, with -h- for voiced [h]. Eg. h-3-w 'time' (Fa 157), h-r-w 'day' (Fa 159): **h-lH(-w). Sem. *h-l-l 'be light, new moon' (Les 217).

huliya- 'wool' (T 278). Sem. Ar. halhala 'to weave finely' (W-C 1032).

huwai- -to run, flee' (**h-b) (T 321). Eg. h-b-ʔ 'to travel' (Fa 158). Sem. Ar. ðahaba 'to go away' (W-C 313): **(ð-)h-b.

We have, then, evidence for the sounds [x γ ḥ ʕ h] either as contemporary values or as sounds from which h was derived. It is entirely possible that all of these values were phonemes in historical Hittite, written with h. The implications for the use of Hittite in etymological work are extremely serious. While many possibilities must be weighed in using such material as we have presented, it is clear that we now have access to much more material for determining the proto-phonemes of IE and their relationship to other languages. Whether or not they were in Hittite, all of these sounds must be considered part of the proto IE inventory.

Another important factor is that many Hittite h's are seen to be affixes. The existence of such an h in Hittite does not ensure its presence elsewhere in IE in the same etymon.

Conclusions drawn from IE vocalization, as utilized in the laryngeal hypothesis, have been deliberately excluded from the presentation. They would have prejudiced the investigation. Only by setting up values independently can we see to what extent the laryngeals presently or previously hypothesized can be correlated with historically known sounds in the LL phylum.

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(Abbreviations used in text follow entries.)

PROTO-GERMANIC *waksan AND THE LOST 'WAX' OF IE

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Too often we fail to appreciate the world of our ancestors by not trying to see its elements in the same context in which they viewed them. Any exercise in linguistic paleontology must take into account both the concrete situation and the mental outlook which that situation imposes upon the viewer. Revolutions in technology produce novel world views that antiquate their predecessors in startling ways. Beeswax or simply wax is one such case, being in part dependent upon the nature of bee-keeping and in part on the development of early technology.

As Buck noted (1949:192), despite the lack of a reconstructible common term, speakers of Proto-Indo-European were undoubtedly familiar with the honey-bee, *Apis mellifera*, and her works. PIE **médhu* 'mead' is recoverable from seven stocks,[1] three of which, Germanic, Celtic and Baltic preserve the original meaning. In four more centralized stocks, Tocharian, Baltic, Slavic and Indic, the innovation of synecdoche, the process of naming an ingredient from its product, has caused the word to mean 'honey'. In three other stocks, Greek, Indo-Iranian and late Slavic, the term has come to mean another type of alcoholic beverage by a common semantic association.

Honey itself was known by another term, **melit-*, which is directly preserved in six stocks.[2] The clearest and fullest of these attestations is Greek, where a neuter noun for the substance, a derivative noun for 'bee' and a zero-grade verb are attested. Moreover, the same neuter noun is preserved in Anatolian and Germanic. Latin *mel, mellis* probably represents an early Italic syncopation[3], while Old Irish[4] and Armenian[5] give evidence of the antquity of the term by having refashioned 'honey' into *u*-stems reflecting independent contamination from the etymon for 'mead' discussed above[6].

Porzig (1954:203) doubted that **melit* was Indo-European, claiming that it is a Western innovation, but its occurrence in Armenian and especially the rare athematic neuter root **melit-* (seen in the zero-grade **mlit-i̯oh̥* > βλίττω 'to rob a hive, i.e. gather honey') assures its Indo-European antiquity by the two-fold test of discontiguous geographical distribution and morphological archaism. These two sets of etyma constitute a semantic domain of apiarian knowledge and make it clear that the Indo-Europeans knew and utilized the products of the honey-bee, although no common term for the insect responsible is recorded.

The forms for 'bee' given by Pokorny (1959:116) with various velar, dental and nasal suffixes on a base **bhi-*[7] are all geographically limited to Meillet's 'Northwest' and are formed from the root √bhei(ə)- 'strike, attack', a clear reference to the habits of disturbed bees whether wild or domestic. In fact, the question of 'domestication' is moot for bees were not

'domesticated' like other animals even when kept for their honey.[8] Races of *Apis mellifera* are widely disseminated through non-desert parts of Eurasia and any or all of these could have supplied the Indo-Europeans with honey and with wax.

The absence of a clear term for 'bee' is explicable when it is remembered that skep apiculture did not breed bees but merely lured wild bees into a convenient place (the skep-hive) where, if they remained undisturbed long enough, sufficient honey was produced to make the destruction of the hive profitable. In such a situation, spells to keep bees from abandoning the skep were rife.[9] The absence, though, of a word for 'wax' is harder to explain. That substance was no more subject to the vagaries of bee-keeping than honey, which is well-documented, and, more than honey, wax served a variety of utiliarian purposes.

In modern life wax is hardly remarkable, but for primitive man it was quite different. Wax, as it happens, is one of the few readily fusible substances known. The typical melting point is between 62 and 65 degrees C (143.6 to 149 F), a temperature which is higher than climatic or human body temperature, but still attainable without specialized equipment and without great risk to the technician. Being relatively inert in water, wax is both an ideal waterproofing agent and a serviceable bonding agent. To put the matter simply, wax was one of the few glues available in a world in which cyanoacrylic resins are not purchasable at the corner store.[10] Thus, we find the adjective *κηρόδετος* 'fastened by wax' used by Theocritus. In addition to being readily fusible, wax is a hydrocarbon[11] that easily burns emitting a more pleasant odor than burning fat or tallow. When neither melted nor burning, wax has a variable yellowish color and a characteristic translucent sheen.

Many of the earliest references to wax refer to its properties of fusibility and appearance. Thus, Homer's only use of 'wax' refers to 'the kneaded honey-sweet wax' *κηρὸν δεφήσας μελιηδέϝα*[12] (*μ* 48) with which Odysseus will instruct his crewmen to plug their ears and avoid the Sirens' song. Ovid's comparison of Galatea's skin warming to Pygmalion's touch: *ut Hymettia sole cēra remollescit* [thus it softened like Hymettian wax in the sun] (Met 10.285), and the Old Icelandic metaphor, *bráðna sem vax við eld* [to melt like wax in fire] (Rb 356) both refer to the property of fusibility as does the Old English use from the *Blickling Homilies*: *Ða fōtlāstas wǣron swutole ⁊ gesyne on þǣm stāne swa hie on wexe wǣron aðyde* (205.1) [Those footprints were clear and visible in the stone as though they were made in wax].

Before Ovid used the phrase *cera pallidiora* 'paler than wax', the fourth century tragedian Chaeremon used the unique adjective *κηρόχρως* 'wax-colored' when referring to hair, and Chaeremon anticipates by some eighteen centuries Chaucer's vivid description of the Pardoner with *heer as yelow as wex* (A 675).[13]

For all of its importance, though, wax is not well-attested in early Indo-European languages. No pan-Indo-European form has yet been discerned. We must then investigate Indo-European terms for 'wax'. The Greek masculine *κηρός* is the source, not a cognate, of

the Latin feminine *cēra* which in turn is the source for the medieval Celtic forms: Welsh *cwyr* OC *coir*, Bret *koar* and Ir *céir*. Greek *κηρός* can only be related to the Baltic etyma for 'honeycomb', Lith *korỹs* and Latvian *kâre(s)*. Frisk (1960:844) was troubled by the vocalism, for the Baltic forms point to an original long **ā* while the uniform Greek η suggests an original **ē*, unless an Attic-Ionic form has universally displaced a West Greek **κᾱρός*. Nevertheless, the latter solution seems more probable than positing anomalous **ē::ā* ablaut.[14] The Baltic-Greek identity, the best candidate for PIE 'wax', is made clearer by the Greek derivative for 'honey-comb', *κηρίον*, which, except for gender, is the exact match of the Lithuanian and Latvian forms for 'honey-comb'. The actual terms for 'wax' in the Baltic languages, as well as the Slavic, are related to the Germanic cognates, the only large set of Indo-European derivatives signifying wax.

Elsewhere, the evidence is even less promising. In the Balkans, Albanian has an archaic neuter *dyllë*, which Meyer (1891:78) correctly derived from PIE **ghud-lom* based on the extended root 'pour'.[15] There are no recorded forms in Hittite and its relatives nor in Tocharian. In Armenian, the term for wax, *mom* appears to be a Near-Eastern loan, which is also found in the most accessible Iranian languages. The Indic terms are all very late and come from post-classical Sanskrit; *siktham* itself is derived from the root √sic- also meaning 'pour', but in classical Sanskrit, this word means 'a rice-ball' and its extension to 'wax' is much later.

A specific Proto-Germanic term for wax, a neuter noun, **waksa-n*, is attested in the form of cognates from all branches but Gothic. ON *vax* is still reflected by New Ic *vax*, Far and Nw *vaks*, Dan *voks*, and Sw *vax* while NE *wax* is a reflex of an unattested Anglian dialect counterpart of classical OE *weax* and, with second fronting, OMerc *wex* of the *Blickling Homilies*. OF *wax* and OS *wahs*, the latter perhaps influenced orthographically by OHG *wahs*, itself the ancestor of NHG *Wachs*, are unexceptional cognates. MDt *was*, the source of New Dutch *was*, probably reflects an unattested OLF form.

The certainty with which PG **waksan* can be reconstructed has prejudiced the treatment of cognates from Baltic and Slavic. Although metathesis is a common feature in all three branches, the order of the medial consonants in Germanic has usurped all consideration. Both Baltic (attested by Lith *vãškas* and Lett *vasks*) and Slavic (RCS воскъ [voskŭ]; R вóск [vósk]) show exactly the opposite arrangement of dorsal stop and sibilant, but the Germanic order predominates in the minds of most etymologists.

All major etymological reference works, e.g., De Vries' *Altnordisches etymologisches Wörterbuch* (1957:648), Pokorny's *Indogermanisches etymologisches Wörterbuch* (1959:1180), and Vasmer's *Russisches etymologisches Wörterbuch* (1953:1,231) cite Lidén's 1897 derivation from the Indo-European root **u̯eg* 'weave', based upon a comparison with the derivation of OHG *wabe* NHG *Wabe* 'honeycomb' from the root *u̯ebh* 'weave'. This parallel is misleading, for the reference in the case of 'honeycomb' is not to

the substance, but to its form, the architectural structure of hexagonal cells that form the comb. The Germanic, Baltic and Slavic cognates all refer to the substance, not to the honey-comb and the presence of a separate, ancient term for 'honey-comb' in Baltic which matches an apparent derivative of the Greek word for 'wax' strongly suggests that these etyma referred only to the substance. We would do well then to investigate the common Germanic, Baltic, and Slavic term for wax by relating it to the properties of the substance, not the form.

Despite demurrers from scholars such as De Vries who labeled Lidén's etymology 'unsicher' as early as 1957 (648), the chief modern rejection of this etymology was offered by Edgar Polomé, who was struck by the peculiarities of the geographical distribution. Polomé declared that Lidén's etymology, depending as it does on a rare s-suffix, 'remains doubtful' and instead proposed that 'borrowing from local non-IE languages or introduction of a "Wanderwort" is also possible with such a technical term' (1972:52).

Polomé was correct in observing the geographical limitations of this word, and he has identified other peculiar 'Northwest' vocabulary items that suggest a pre-IE language was spoken over this region. However, I suggested elsewhere (Huld forthcoming) that in addition to geographical criteria, phonological criteria could also be applied to pre-IE. It is significant, therefore, that Polomé's other pre-IE items fail to show the complex medial consonant cluster seen in 'wax'. The presence of such complex clusters is indicative of PIE, and this fact warrants another search for a native Indo-European source. The Germanic cognates have been too influential in etymologizing 'wax'. Lith *vãškas* and Latv *vasks* point to a Proto-Baltic **wáskas*, a form that will do double duty for Slavic as well. Russian Church Slavic *воскъ* (*voskŭ*), the antecedent of R *вóск* (*vósk*), is not far removed from PS **woskŭ*.

Though both Baltic and Slavic agree in showing a different order of medial consonants, that of *sk*, and Germanic is notorious for metathesis of such a cluster, the predominance of Germanic is such that even Slavicists try to accomodate the Germanic proto-form. Although it is **sk* which gives Slavic *sk* and Lith *šk*, while **ks* gives Slavic *s* and Lith *š*, Slavicists have traditionally accepted the order of the Germanic consonants and noted that 'wax' presented problems (Shevelov 1964:141).

If we accept the Baltic-Slavic consonantism as the more conservative, Lidén's etymology with its improbable rare -so-suffix becomes even more unlikely. A revised interpretation points to a sibilant final stem with the common -qo-adjectival suffix. This may be refined to the o-grade of **ues(H)-* 'be liquid' (Pokorny 1959:1171-72), the same source as English *ooze*. The correct reconstruction is then **uos(H)-qo-* < 'a substance that oozes or flows'. While Germanic cannot be relied upon for the order of the medial consonants, the gender is archaic. Modern Baltic has lost the neuter category, and Slavic has many instances of original neuters becoming masculines, e.g., даръ (*darŭ*)

'present' < PIE *doΩr-om* (cf Gk *δῶρον*). In these three groups, 'wax' is a substantized neuter adjective originally meaning 'fluid'; this development is comparable semantically, if not phonologically, with the form in Albanian, *dyllë* which is also a neuter noun derived from a root dealing with liquids and fluidity. Throughout Central Europe adjectives meaning 'fluid' were substantized to mean 'wax' just as the adjective 'mature, ripened', PIE **grh̥-no-m*, replaced the original Indo-European neuter noun for 'grain', **ghrs-d*. There must then once have been an Indo-European neuter noun for 'wax'.

Such neuter nouns are common referents for substances, e.g., 'water' **uod-r*, 'milk' **golh̥k-t*, and 'fleece' **pok-u*, and like 'water', 'blood', 'excrement' and other biological products, these neuters are frequently members of the moribund class of *r/n* heteroclites, stems that end in a nominative singular r but have an *n* in the oblique cases. The original Indo-European word for wax was just such a noun. It can now be identified in the stem for the Greek word for 'wax' and the Greek and Baltic derivatives meaning 'honey-comb' as well as a number of hitherto unassociated forms based on this same lost stem.

The discrepency between the Greek masculine and the Latin feminine *cēra* was explained by Walde-Hofmann (1938) as analogous to *tabella* 'writing tablet' which was covered with wax, but wax served many other purposes, and writing was one of the least common.[16] Moreover, the tranfer of a masculine to a feminine is unusual at all times, but the transfer of a neuter mass noun to a feminine or its thematicization to a masculine are quite common processes. Latin *cēra* suggests that Greek *ὁ κηρός* was derived from a neuter plural **τὰ κῆρα*. These must reflect a PIE noun **qoAr*, whose oblique forms would have been **qA-n-* and **qA-en-* with a nominative plural **qeA-n-h̥* or analogical **qeAr-h̥*. These variants explain forms that relate to the properties of beeswax. We not only account for the Latin shape of the Greek loan and the neuter gender of the Greek diminutive for 'honey-comb', *κηρίον*, but for the neuter assignment of the metathesized PG **waksan* and Albanian *dyllë*.

The declension of any stem with phonological allomorphism will be a potent area for analogical reformations, and we should expect reflexes of the oblique cases of our archaic heteroclite as well. The least obvious are those relating to color. From the oblique stem with analogical o-grade of the nominative singular, several productive qo-adjectives were independently formed. Old Prussian preserves a term for 'brown' *cucan* from the simplest stem **qoA-n-qo-*. Old Indic *kāñcana-* 'golden' reflects a further nasal extension **qoA-n-qe-no-* while Germanic has employed the still-productive adjectival suffix **i-qó* to form a substantized noun **qoA-n-i-qó-* 'that which is derived from beeswax, honey' which shows the same shortening of a long pretonic vowel seen in 'son' (PG **sunuz* < PIE **suH-nu-*) or 'man' (PG **weraz* < PIE **u̯iH-ro-*).

The full e-grade stem of the nominative plural, with a common s-mobile, gave an Albanian derivative that again ties our heteroclite intimately with beeswax: Albanian *huall*, *hoje* 'honey-

comb' must reflect earlier **xō-l-(jå)* which in turn is derived from PAlb **xān* < PIE **s-qeA-n-*. This same stem, also produced an adjective in Greek. **qeA-n-qo-* gave proto-Hellenic **κᾱνκός* which metathesized to Doric *κνᾱκός* and Att *κνηκός*, adjectives describing the waxen color 'yellow'.

Thus from a single unattested PIE neuter *r/n* heteroclite we obtain by gender shift the classical Greek term for 'wax', a lost Greek variant loaned into Latin as 'wax', the Greek and Baltic *jo*-stem derivatives meaning 'honey-comb', an Albanian derivative meaning 'honey-comb', *qo*-suffixed adjectives referring to a yellowish color of wax in Old Prussian, Old Indic and Greek, and a substantized derivative adjective in Germanic referring to the honey-comb's most important contents, 'honey'.

We have only one last riddle to answer, why was it necessary to replace this respectable Indo-European neuter heteroclite with novel substantized adjectives meaning 'fluid' in Albanian on the one hand and in Germanic, Baltic and Slavic on the other? Here we must return to the technology of the Bronze Age, for it was at that time that wax suddenly achieved a new technological status, which made fusibility its paramount virtue. That new technology was the development of bronze casting using the technique that still goes by the name of *cire perdue*, lost wax.

FOOTNOTES

1 Proto-Germanic **meðu* is assured by ON *mjöðr*, OE *meodu*, OFris *mede* and OHG *metu*. A Gothic **midu* can be assumed from Byzantine glossary notices of *μέδο* and the Lithuanian loan *mìdus*. Celtic reflexes are found in OIr *mid*, W *medd*, Br *mez* and OC *medu*. Lith *medùs*, Latv *mẹdus* and OPr *meddo* supply the Baltic cognates. All of these terms mean 'mead' exclusively except for Latvian which also means 'honey' and *meddo* with is glossed only as 'honey'. The latter meaning occurs in TB *mit*, OCS *medŭ*, and OIn *mádhu*, also meaning 'wine', the only meaning applied to Av *maδu* and Greek *μέθυ*.

2 These are Gk *μέλι*; Anatolian (Hitt *milit* and Luw *mallit-*; Germanic (Go *milip*); Latin *mel*; OIr *mil* and Arm *mełr*. Alb *mjaltë* has also been cited as a cognate, but it is correctly taken as a loan from Vulgar Latin **mellitum* (see Hamp 1966:115). Alb *bletë* 'bee' taken by Jokl (1923: 294) as a Latin loan, is probably the correct cognate and a native word parallel in semantic and morphological developments to Greek *μέλισσα*.

3 There is no need to posit a special *n*-stem formation for Lat *mel*, *mellis* as Walde-Hofmann (followed by Buck [1949] and Pokorny [1959]) do; the Italic nominative would have been **melid* with neutralization of the final stop as in the Old Latin subjunctive *sīed* then generalized throughout the paradigm, ie **melidos*. Syncopation would then have produced a cluster **-ld-* which would

assimilate into the geminate as easily as a nasal cluster, ie **meldes* > *mellis*, from which the nominative was back-formed.

4 Thurneysen (1946:47) and Lewis-Pedersen (1961:105) label *mil*, genitive *melo*, an *i*-stem, another example of unnecessary morphological complexity being imputed to the stem for 'honey'; a *u*-stem derived from 'mead', unquestioned for Armenian, would account for the raising of the stem vowel in the nominative singular as easily and permits the assumption of a single PIE stem for all languages.

5 The final *r* of nouns like *asr* 'fleece' < **poku* is the regular, though phonologically obscure, reflex of old *u*-stems.

6 Although a reflex of 'mead' has not survived into recorded Armenian, this fact adds Armenian to the list of languages evidence PIE **médhu*.

7 PIE **bhi-k^{w}ó-* > PG **biǯwá-* > ON *bý*, OE *bēo* OS, OHG *bīa*; > PCt **bĭkwo-* > OIr *bech*; > PS **bĭke-lā* > OCS *bĭčela*. PIE **bhi-tiā* > Lith *bìte*.

8 Until 1840 when Moses Quinby invented the modern box-hive and the smoker and Langstroth discovered that bees would not fill in a parallel space of 5/16th of an inch, it was not possible to collect honey without disturbing the colony. The earlier form of the hive was a skep. Under such conditions, breeding of bees was impossible, and claims that "domestic" bees are limited to such and such a place lose their significance.

9 One such spell is preserved from Old English (*Anglo-Saxon Poetic Records* vi:125). Pliny as well as the *Bible* preserve folk customs of attempting to lure bees with dead carcasses. Dr. Norine Dresser informs me that such spells and practices remain as part of the living folklore of bees even today. Hesiod (*Theogony* 593-99) knows of thatched hives (skeps), but Homeric similes (M 167) suggests wild bees.

10 The importance of such amenities in "primitive" culture can hardly be underestimated. Ishi, the last "wild" Amerind of California, is reported to have judged western European culture's two greatest achievements as glue and matches.

11 True wax is a mixture of myricyl palmitate, cerotic and other fatty acids. Paraffin, the modern petrochemical replacement, is an class of alkanes (or paraffins in the broadest sense), hydrocarbons with a general formula $C_n H_{(2n+2)}$ in which the compound is solid at room temperature if $n \geq 15$.

12 μελιhηδέϝα with its short third syllable probably represents a regressively dissimilated **μελι-hϝηδέϝα*, a tendency of Homeric diction which also accounts for *οἰϝωνός* < *ὀϝιϝωνός* and the

variation between geminate and single lambda in 'Αχιλῆϝος < 'Αχιλϝῆϝος beside 'Αχιλλεύς < 'Αχιλϝεύς. Although it is possible to interpret μελιηδέα as μελιη-δέηα, 'ash[spear]-binding wax', other uses both in Homer and elsewhere indicate the association with honey was what was being mentioned.

13 Some editors have needlessly emended the text to κιρρόχρως 'tawny-colored', but the parallel with Chaucer and the aptness of waxen to refer to yellowish shades justifies retaining the manuscript reading.

14 The argument against assuming a widespread Atticism in all attested forms is that 'Doric' writers such as Theocritus never employ the expected *κᾱρός but κηρός (twice). Given the rareness of this word — both Homer and Plato only use it once — and Theocritus's lack of dialectal uniformity, the assumption of Attic vocalism of an attested ablaut-grade is preferable to positing an *ē::*ā ablaut.

15 Meyer (1891:78) compared Gk χῡλός 'juice' and related to the root √gheu- 'pour'. Jokl, though accepting the semantics, was troubled by the palatal, and instead posited the root √dheu- 'flow' (1924:88). Çabej (1961:70-71) dismissed the relation with roots referring to wax's liquid state and proposed deriving *dyllë* from the root √ghel- 'yellow', although by his suggestion the vocalism became even more troubled than Meyer's or Jokl's account. Tagliavini (1937:110) and Huld (1983:57) accepted Meyer's semantics and root, but struggling to understand the obvious length required to account for Alb *y*, instead posited an ad hoc enlargement in **s* to account for Greek and Albanian. It is now clear that pre-Alb long *ū* must, as in Baltic and Slavic, be generated by a following voiced unaspirated stop. This would be the **d* of the secular version of √gheu-d- 'pour'. In other words, Meyer's etymology was right after all.

16 Of the six uses of *cēra* listed in the *Oxford Latin Dictionary*, the covering of writing tablets is fourth, coming after its use as an agent to plug or fix things, its use in medicine compounding, and its use as a sealing agent. The fifth and sixth uses are as an ingredient in paints and varnishes and as a modeling medium in art.

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PAPIAMENTU AND ITS PORTUGUESE ELEMENT

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A creolist asked to identify one of the most critical issues in the burgeoning field of creolistics would no doubt choose the issue of pidgin-creole genesis as foremost. Ever since the late nineteenth century, when European scholars first began to devote serious attention to these languages, the question of their origins has been of critical interest.[1] Such interest is easily explained, of course. Compared to other languages, sometimes referred to--unfortunately--as natural languages, in opposition to creoles, the latter have a relatively brief history. Their very beginnings, in many cases, were no more than two hundred years removed from the time of those who first began to investigate them. Moreover, the very fact that creole languages could develop in a single generation out of contact pidgins, thus drastically compressing the time span of the non-creoles more familiar to historical linguists of the past century, seemed to offer the possibility of unique insights for those interested in language change. More specifically, such insights could be used as a challenge to the rigid precepts of the Neogrammarians of the day.

Although interest in creole languages never entirely disappeared from the linguistic scene, creole studies were at best a marginal field, especially during the middle decades of the current century, when interest in synchronic linguistics was at its peak. More recently, with a renewed interest in language variation and change, and the realization that the study of pidgins and creoles could shed direct light on some of the most critical questions that linguists were asking, creolistics has become an important area of linguistics. Interest in the field, in both North America and in Europe, is accelerating rapidly. Several books devoted to pidgin and creole studies have appeared in the past

few years, and journals frequently publish articles both on issues of general theoretical interest to creolistics and on individual pidgin and creole languages.[2] An annual bibliography devoted exclusively to creoles of Romance lexicon lists nearly two hundred titles published during the latter half of the 1980's alone.[3]

With regard to the origins of creole languages, the debate can be reduced--in an admittedly simplified form--to the opposition between monogenesis and polygenesis. Those who subscribe to the former believe that the Caribbean creole languages developed from an Afro-Portuguese pidgin brought to the New World by slaves from the west coast of Africa and subsequently relexified through contact with speakers of English, Dutch, French, and Spanish, according to the group most numerous in the place in question. Those who support the theory of polygenesis contend that each Caribbean creole has its own starting point, that each one grew independently out of the contact between speakers of a particular European language and the enslaved Africans, with the secondary influence of indigenous New World languages. This second theory of origin includes a variation which falls short of requiring independent development for the several instances of creoles modeled on each of the European languages. It suggests instead that a pan-Caribbean creole was formed for each European language and from that arose the various member creoles of each language base. Support for this assumption is found in the high degree of mutual intelligibility that exists among the individual creoles of a particular lexical base.

Papiamentu, the Romance-based creole language of the Netherlands Antilles islands of Curaçao, Aruba, and Bonaire, has played a key role in the debate concerning pidgin-creole origins. It was formed from the contact between Africans and Europeans that began during the early phases of New World trade and colonization, during the 16th and 17th centuries. But the precise roles that African (Bantu) and European languages played in its early history are uncertain. The lexicon of Papiamentu is derived primarily from the European languages spoken in the southern Caribbean during the early period of its development, while its structure, similar to other European-based creoles, is largely independent of its source languages. Today the vocabulary of Papiamentu most resembles Spanish, but an unmistakable Portuguese element, too, is present. In addition, a significant

overlay of Dutch vocabulary exists, the product of the almost uninterrupted presence of Dutch speakers on these islands since 1634.[4] An understanding of the precise role of Portuguese in the history of Papiamentu is essential not only for a thorough account of the development of Papiamentu itself, but also for a full comprehension of the nature of the genesis of Caribbean creole languages in general, for which many scholars have proposed a Portuguese contact language used between sailors and slaves as the ultimate source. While some scholars have seen Papiamentu as essentially a Spanish-based creole, others have suggested that its Portuguese element is fundamental. The latter have attempted to explain this Portuguese element on external historical grounds, variously attributing it to a Portuguese pidgin presumed to have been spoken by African slaves, to the Portuguese spoken by European refugees to Curaçao from Dutch-held Brazil, or to a combination of these and other factors.

The earliest detailed scholarly study of Papiamentu is Lenz (1928),[5] which broke with a traditional point of view that saw Papiamentu as a corrupt form of Spanish, a remnant of contact between Africans and Spaniards, dating back to the 16th-century period of Spanish rule in the southern Caribbean.[6] Such was the position, it would seem, of Van Name (1871), who referred to Papiamentu as Creole Spanish, but did not otherwise explore the question of Papiamentu genesis, and nowhere mentioned the possibility of any Portuguese influence on the language. Coelho (1882) also considered Papiamentu (he did not refer to it by that name, however) to be a Spanish-based creole. Lenz, on the other hand, did recognize the important Portuguese element in Papiamentu, despite its primarily Spanish lexicon. He assumed that Africans learned a broken Portuguese from slave traders and used it as a lingua franca among themselves. He supposed that this broken Portuguese, or pidgin (he did not use that term, however), took on a more fixed form, creolizing even before the slaves were transported to the New World. A shift from a basically Portuguese to a basically Spanish vocabulary then took place, Lenz believed, as the slaves came into contact with Spanish speakers in the New World. He recognized the Dutch contribution, too, although he considered it minimal. Lenz also conceded the possibility that Portuguese-speaking Jews who emigrated from Brazil to Curaçao might have had a role in adding to the Portuguese element in Papiamentu, but he saw no direct evidence

of that. In all this, Lenz gave the essential outlines of much of what has been written since on the origins of Papiamentu, and particularly, on the source of its Portuguese element. Although he did not use the term, Lenz seems to have described the process that later came to be known as relexification.

Navarro Tomás (1953), in what he explicitly termed "adición fonética al trabajo de Rodolfo Lenz," provided phonetic details of the language. Concerning the genesis of Papiamentu, the Spanish scholar provided some essential historical and demographic facts. He mentioned the discovery of Curaçao by the Spanish captain, Alonso de Ojeda, in 1499 and the domination of Curaçao by the Spaniards until the early 1630's, when the Dutch took Curaçao and its neighboring islands of Aruba and Bonaire. At that point there were thirty-two Spaniards and about 1400 Indians on Curaçao, but the Spaniards and the majority of the Indians along with them retreated to the South American mainland. According to Sapper (1912), whom Navarro Tomás cited, only seventy-three natives remained on Curaçao in 1635 and, by the end of the 17th century, they had almost completely disappeared. Navarro Tomás claimed that the Spanish language disappeared from Curaçao with this change of rulers and was replaced by the Dutch of the masters and the creole Portuguese of both a large permanent African slave population and a transitory one, since Curaçao was made into an important slave depot. It was during the 17th and 18th centuries, then, according to Navarro Tomás, that Papiamentu was formed, from an Afro-Portuguese contact language, with no role ascribed to Spanish in the early history of the Caribbean creole. But beginning in the second half of the 17th century, Jews from Brazil, who likely spoke both Spanish and Portuguese, may have begun to influence Papiamentu, to a limited degree, in the direction of Spanish. Navarro Tomás believed that Spanish began to have a really significant impact on Papiamentu only in the early years of the 19th century, at which time large groups of Venezuelans and Colombians took up residence in Curaçao and commerce between Curaçao and the Spanish-speaking mainland began to grow. It is especially interesting that Navarro Tomás dated the start of Spanish language influence on Papiamentu to the arrival of the Jews from Brazil, since it is precisely this historical fact that earlier writers had used to explain the Portuguese character of

Papiamentu and which many researchers since Navarro Tomás have used similarly.

Van Wijk (1958), explicitly following the arguments of Lenz and Navarro Tomás, came down strongly on the side of an Afro-Portuguese origin for Papiamentu. But he suggested that Hispanization occurred much earlier than the 19th century, specifically during the late 1600's, when Spanish-speaking priests began to proselytize among the slave population. The Hispanization of Papiamentu was then further accelerated, Van Wijk believed, by the wave of immigration of Spanish speakers from the South American mainland, noted by Navarro Tomás, and the resultant increase in commercial contacts with Venezuela and Colombia. The precise role of Spanish speakers in the development of Papiamentu is not at all clear, but Van Wijk is certainly correct in placing the date of a strong Spanish language influence on Papiamentu earlier than the 19th century. Although both Van Wijk and Navarro Tomás before him believed that the oldest extant Papiamentu texts dated from 1843, within the past twenty years there has come to light a letter of 1775, written in Papiamentu by a Curaçaoan Jew to his wife.[7] The essentially modern, that is to say Hispanic, character of the Papiamentu in this letter (despite the fact that its writer was probably also a Portuguese speaker), attests to the very early role of Spanish in Papiamentu and thus requires an explanation that would place the source of that influence earlier than the 19th century. With regard to the role of Portuguese-speaking Jews in the development of Papiamentu, Van Wijk admitted the possibility of their having contributed to the Portuguese elements in the language, but he believed that the Portuguese character is basic and fundamental, pre-dating the arrival of Jews on the island. It must be mentioned, too, that Van Wijk was more cautious than other researchers, who have tried to identify a uniquely Portuguese versus a uniquely Spanish element in Papiamentu. Instead, Van Wijk recognized that the similarity of the two Ibero-Romance languages, at least in vocabulary, would often make the assignment of a particular Papiamentu word to either one or the other impossible.

More recently, DeBose (1975) has revived the belief that Papiamentu has its origin in Spanish, a viewpoint which he reiterated in a paper presented at the inaugural meeting of the Society for Pidgin and Creole Languages, held in December 1989,

in Washington, DC. DeBose believes that Papiamentu is the result of an imperfect acquisition of Spanish on the part of Curaçaoan slaves. According to DeBose, the claim that has been made by many other writers, that Papiamentu came into existence when an earlier pidgin was learned as a first language, is not supported by the evidence. At the same time, DeBose considers Papiamentu to be a creole and rejects what has come to be a traditional part of the definition of 'creole', namely, that it is a nativized pidgin. He supposes that, beginning in the mid-17th century, the slaves of Curaçao learned a broken form of Spanish and that this rapidly developed into Papiamentu. He explains the Portuguese element in Papiamentu as resulting from the fact that at least some of the slaves who arrived in Curaçao knew the Afro-Portuguese pidgin (or creole) and, possibly, from the existence of Portuguese as the native language of the Jews of Curaçao.

Goodman (1982) and (1987), in the most thorough accounting of the Portuguese element in the New World creoles, from the external point of view, has very carefully considered the various hypotheses of Papiamentu origin and has measured their worth against substantiated historical fact. This enables him to refute, in a convincing manner, those hypotheses which do not hold up against the facts, particularly the old traditional hypothesis, in recent times put forth most strongly by DeBose (1975), that Spanish, rather than Portuguese, was the basis of Papiamentu and the belief, first proposed by Lenz (1928) and largely followed by Navarro Tomás (1953) and Van Wijk (1958), that Papiamentu has its origin in a variety of Portuguese spoken by slaves transported directly from West Africa to Curaçao. As Goodman (1982:55) writes:

> Spanish had obviously ceased to be widely used in Curaçao after the Dutch conquest, and there is no way of explaining the development of a Spanish-based Creole on the island, particularly since the Spanish had imported no slaves when they ruled it, and the Dutch very few during the first twenty years of their occupation: 1634-1654. On the other hand, it is difficult to imagine a group of European colonists, such as the Dutch, adopting a language used by incoming African slaves, i.e.

Portuguese Pidgin/Creole, which was completely different from their own.

Instead, he proposes a plausible alternative, in accord with available linguistic and historical evidence. Goodman finds that, although a few slaves imported directly from Africa may very well have spoken a form of Portuguese, these were isolated individuals. The facts regarding the historical background of the slave trade do not support the claim that such knowledge was general. Instead, Goodman believes, the Portuguese element in Papiamentu and in the New World creoles, in general, derives from the language brought to Dutch, English, French, and Danish colonies by Dutch and Jewish refugees who were forced out of Brazil in the 1650's, accompanied by their Creole Portuguese-speaking slaves. Beyond that, he allows that whatever knowledge of Portuguese those slaves who arrived in Curaçao direct from Africa had, could have reinforced the Portuguese forms used by Brazilian refugees. Goodman's arguments are all the more compelling because, instead of rejecting a particular hypothesis about Papiamentu genesis out of hand, simply because parts of it are untenable, he very painstakingly examines each hypothesis. With an eye carefully focused on documented historical fact, he retains and puts to good use those aspects of proposed hypotheses that can be supported, and separates them from those which attention to history leads him to discard. This manner of argumentation is most notable in Goodman's treatment of the extent of the knowledge of Portuguese Pidgin/Creole among New World slaves.

Even among those scholars such as Lenz, Van Wijk, DeBose, and Goodman, who have, to various degrees, attributed the Portuguese element in Papiamentu to the language spoken by the Jews who lived in Curaçao beginning in the 1650's, there has been considerable doubt concerning the precise role that Portuguese played in this important community.[8] Other scholars, such as Wood (1970:8-9) have even gone so far as to doubt that Portuguese was ever the vernacular among this group. However, a key source for an understanding of the importance of Portuguese among Curaçao's early Jewish community exists. Curiously, it has been overlooked by all of those who, during the past thirty years, have written on the genesis of Papiamentu. Not even Reinecke et al. (1975), surely the most complete

bibliographical source for Papiamentu (and other creole) studies, make reference to it. I am referring to Isaac Emmanuel's, Precious Stones of the Jews of Curaçao, published in 1957, the companion volume to his and his wife's 1970 general history of the Curaçao Jewish community. Ignorance of this source may be due to a presumed irrelevance to questions of language because of its highly specific subject matter, or simply to the fact that it is found in only a very few research libraries. In any case, a careful reading of this work reveals that it in fact casts much light on the question of the linguistic abilities of the early Curaçaoan Jews. After reading this extraordinary study, one would find it difficult to agree with Wood, for example, regarding any doubt as to the importance of Portuguese among these people. Emmanuel shows that, from the earliest of the gravestones with a legible date, going back possibly to 1668 or earlier,[9] the epitaphs are written in Portuguese. Although Spanish, too, is used on these tombs beginning in the 17th century, a majority of the gravestones, 1,668 out of 2,574, or nearly two-thirds, spanning the three hundred year period from the mid-17th to the mid-20th century, have an epitaph in Portuguese. The preponderance of Portuguese is even more striking if we take a chronological point of view.[10] Only four of the forty-seven, or just over 8.5%, of the 17th-century epitaphs studied in Emmanuel are in Spanish, while forty-two, or nearly 90%, are in Portuguese (six of these include Hebrew; the remaining one is in Hebrew alone); of 18th-century epitaphs, nine out of one hundred twelve (8%) are written in Spanish, with seventy-eight (70%) in Portuguese, nearly 30% of the latter with Hebrew, too (the remainder are monolingually Hebrew). Interestingly, one of these, dating from 1715, includes both Portuguese and Spanish--and Hebrew, too--making it one of only two trilingual tombstones in the entire cemetery, the other being a stone of 1740, written in Hebrew, Spanish, and English. A significant language shift seems to occur in the mid 19th century. Nearly half of the gravestones from the first half of the century are in Portuguese, with about one-fifth in Spanish. Of the remainder, there are a few more epitaphs in English, and the first two in Dutch appear during this period. For the rest of the century (the period covered runs from 1854 to 1884) only two epitaphs (12.5%) are written in Portuguese, the last of these in 1865. By now, over 40% are composed in Spanish, 31% are in Dutch, and the remaining 12.5% are in English. Although

Emmanuel was only tangentially interested in the linguistic repertoire of the Curaçao Jewish community, he did devote a small section of his study (111-114) to their languages, and he is explicit here with regard to the importance of Portuguese:

> Until 1865 the predominant language was Portuguese. It was the mother tongue of all the Jews and was used in the synagogue and in the communal chancery. In this respect also the Jews of Curaçao showed a striking similarity to their coreligionaries of Salonica. As the Salonicans had done with the Spanish language, so did the Curaçaon (sic) Jews carefully transmit the Portuguese tongue to their children. To them it was a living relic of the lost homeland. They treasured their memories, in the distant isle of Curaçao, in the language they piously kept, and which is still used in the synagogue. (112)

Even if one did not believe that the languages used on gravestones provided sufficient evidence of the languages used in everyday life, other documents, such as wills and receipts, which Emmanuel ran across in his research, and which are written mainly in Portuguese, certainly lend further credence to the belief that Portuguese was the principle vernacular of the Jews of this period.[11] And, of more direct relevance to our concerns here, this clearly opens the way for the belief of those scholars who have attributed the Portuguese element in Papiamentu to this community.

The beliefs of the many researchers who have addressed themselves to the question of Papiamentu genesis clearly cannot be summarized easily. The monogenesis/polygenesis opposition and, more specifically, the role of Portuguese in the development of Papiamentu and other New World creoles, have been the themes of greatest interest. It is probably safest to say that blind fidelity to any one extreme, particularly in the face of contrary evidence, is not likely to lead to acceptable origin hypotheses. Unfortunately, research in the pidgin/creole field has, at times been conducted with a smaller measure of attention to historical detail than is required for the formulation of credible genetic theories.

With regard to the contribution that Portuguese has made to Papiamentu, it must be concluded that it is indeed fundamental. Given Goodman's careful arguments, the historical facts concerning the absence of a significant number of Spanish speakers during the critical period of the early genesis of Papiamentu, and the unmistakable importance of Portuguese, shown so clearly in Emmanuel (1957), among a key speech community in the early development of the creole, the hypothesis that Papiamentu has its source primarily in Spanish, argued most forcefully by DeBose (1975), is clearly untenable. A close examination of the Papiamentu lexical items that are most likely traceable to Portuguese will have to remain for another study.

NOTES

[1]The most important of the early scholars to study pidgin and creole languages in depth was the German linguist, Hugo Schuchardt, who published on them extensively during the 1800's. His contemporary in Portugal, Adolfo Coelho, focused his attention on the Portuguese creole of the Cape Verde Islands. Early in the 20th-century, in The Netherlands, Dirk Hesseling concentrated on Dutch-based creoles. See Meijer and Muysken (1977).

[2]A minimal bibliography of the most recent surveys of pidgins and creoles would include the following: Green (1988), Holm (1988), (1989), Mühlhäusler (1986), and Romaine (1988). The most important journal devoted exclusively to creolistics is the Journal of Pidgin and Creole Languages, published by John Benjamins.

[3]See Jeuda 1984-1990.

[4]Wood (1970) gives an extended account of the Dutch influence on Papiamentu, not only in lexicon, but also in phonology and syntax. For two brief periods during the nineteenth century (1800-1803 and 1807-1816) the Netherlands Antilles fell to the British. Before the Dutch gained control in 1634, the islands were dominated by their initial European colonizers, the Spanish.

[5]Teza (1863), a linguistic analysis of a Papiamentu version of the Lord's Prayer, appears to be the first treatment of Papiamentu by a language scholar. It takes a synchronic approach and assumes Papiamentu (which Teza calls only 'curassese') to be a corruption of Spanish. Nowhere in the article does Teza mention Portuguese influence, but he does make note of the Dutch element. Although this paper offers no information on Papiamentu genesis, it is remarkable, if only for its early date and serious treatment of the language. Lenz (1928) was aware of both Teza's and Van Name's studies, but he listed them in his bibliography as items that he was unable to consult.

[6]The first mention of Papiamentu dates back to the early 1700's, when, according to Van Wijk (1958:169), Alexius Schabel, an Austrian priest who lived in Curaçao from 1704 to 1713, referred to "un español chapurreado", "a broken Spanish".

[7]This letter, actually a fragment of a letter, was first published in Emmanuel and Emmanuel (1970:Plate 78, facing p. 257), identified as a "letter of a Curaçaoan Jew in Papiamento, 1776," without further comment or translation. It appears again, with linguistic comment and with the claim that it was written not in 1776, but rather in 1775, in Maduro (1971:55-7) and is further discussed, at length, by Wood (1972) and by de Granda (1974), who, unfortunately adding to possible confusion about the year in which the letter was written, mistakenly has it as 1766, perhaps perpetuating a single misprint that appears in Wood (1972:21). The letter is also discussed by Birmingham (1976) and by Salomon (1982). The interest which this letter has engendered derives not only from the obvious linguistic importance that it holds for the history of Papiamentu, but results also from a controversy, of little linguistic relevance, concerning whether the letter is, in fact addressed to the writer's wife or, instead, to his mistress.

[8]Although precise census figures for 17th-century Curaçao are unavailable, it has been suggested that Jews made up the majority of the white population on the island by the end of that era.

[9]Emmanuel reports that there is some doubt as to this date, since the last numeral is broken. The date may be as early as 1662.

[10]The epitaphs of only some two hundred twenty-five of the 2,574 gravestones which Emmanuel counted in Curaçao's Beth Hahaim cemetery are printed here. Thus, as we attempt to study them chronologically, we must acknowledge that those thus available to us are only tentatively representative of the linguistic composition of the entire number of stones of any given period. Emmanuel writes that he made transcripts of all the epitaphs in the cemetery, but that he has chosen to present only a sample of them (obviously for lack of sufficient space), according to the following criteria: 1) Forty-two epitaphs of the earliest Jewish pioneers of Curaçao. 2) Those epitaphs of rabbis, teachers, doctors who distinguished themselves in Jewish communal life. 3) Practically all the epitaphs in Hebrew. Thus, only Hebrew, which of course was not part of the everyday oral repertoire of the community and which is largely irrelevant to our concerns here, is clearly overrepresented.

[11]Unfortunately, Emmanuel makes no mention of the use of Papiamentu among the Jews. It should be remembered here, however, that he was the unwitting discoverer of the earliest Papiamentu document, which he published without comment thirteen years after the book under discussion appeared (see note 7, above). It may well be that a close search among papers in the archives of Curaçao and of the Jewish communities of the Netherlands would reveal Papiamentu writings predating the 1775 letter fragment. In his bibliography, Emmanuel (1957:567) refers to "some 500 bundles of loose documents" in the archives of the Portuguese Jewish community of Amsterdam, alone.

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SĒMA AND TÚMBOS,-- MORE THAN JUST MOUNDS

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Fame is a food that
dead men eat... Henry Austin Dobson (1840-1921)*

When pursuing historical reconstruction, one must take into account the necessary interrelationship between literary sources, linguistic data, and the archaeological record. To illustrate this postulate, the following investigation explores some aspects of the quest for everlasting fame. This theme, widely portrayed in epic traditions and supported by linguistic evidence, presents reflexes in the archaeological record as well.

Specifically, scholarly sources reveal that within the Indo-European cultural tradition, fame, particularly fame achieved through valiant and daring deeds, is a mark of distinction to be highly coveted (Jones-Bley 1990)[1]. Further, status achieved in this manner is rewarded by a differential treatment of the dead; a distinction that comforts even the king of the gods.

As a case in point, when Hera cajols Zeus into allowing Sarpedon's death at the hand of Patroclus, to soothe the father's sorrow while encouraging the deed, she reminds Zeus that: "...brothers and countrymen shall give him (Sarpedon) due burial with a grave-mound and a gravestone. For this is the privilege of those who have (so) died" (Il 16.456-7; 674-75).

As archaeological mortuary analysis attempts to link both social structures and the ensuing social relationships to the disposal treatment of the deceased (Saxe 1970), it is here proposed that the physical manifestation of the quest for eternal fame is evidenced in the plethora of barrows[2] that dot the European landscape (Gimbutas 1965; Ecsedy 1979; Mallory 1989). For that matter, the quest for imperishable fame may have featured prominently in the transition from the practice of communal entombment, to the custom of primarily single burial in mounds. The latter, a principal diagnostic trait in the identification of the Pontic-Caspian Steppe cultures, is attested as early as

the the Fourth Millennium B.C. (Mallory 1989:183-84). The notion of fame, as a criterion of differentiation in interment procedures, might even account for the practice of secondary burial. This alternate mortuary convention is also a characteristic of the Indo-European cultural horizon attested by the archaeological record (Jones-Bley 1990).

Thus, the Indo-European grave mound was a monument, apparently erected, primarily, to honor the individual and perpetuate his fame. The numerous funerary monuments erected by the people associated with the Indo-European cultural complex suggest this thesis. Furthermore, as early as the Yamnaya period (3500-2500 B.C.), Indo-European kurgans sometimes featured an anthropomorphic stele (Mallory 1989:204). Taken together with the practice of building individual funerary barrows, the placing of a grave-marker further suggests that kurgan burials were erected mainly to distinguish the particular individual interred in the central grave. Because these burial mounds were visible from a distance and on the steppe were often the only distinguishing feature of the landscape, they constituted, in effect, a memorial to the person buried within.

The archaeological inference is supported by the literary evidence as found beyond the Homeric epics, for example, in the Aeneid, Beowulf, or even the Eddas. Indeed, inherited literary traditions have preserved similar accounts celebrating both the heroes and their intrepid feats. Thus, whether perusing the earliest Homeric epic on one hand, or browsing through the late Irish epic on the other, one quickly notices that both heroes, Achilles as well as Cú Chulainn, expressly chose to live short lives culminating in their perpetual fame rather than endure long lives in abject obscurity. They did so in the belief that their fame would last forever.

In fact, the inherited poetic narratives support the notion that the quest of the epic hero for imperishable glory is an important element of Indo-European ideology (Della Volpe 1990b). For instance, the theme of the hero and his quest is a feature elaborated also by mythologies as well as by religious ideologies of the descendent Indo-European groups (Puhvel 1987).

Beyond praising the valor and the heroic endeavors performed in the quest for eternal glory, literary descriptions in Indo-European sources provide data, also corroborated by archaeology, on both the construction of the burial mound and the funerary rituals accorded to the hero (Della Volpe 1990a). The common elements featured in such a funeral ceremony often include the construction of a funeral pyre, the burning

of the body together with offerings, the subsequent gathering of the bones[3], the erection of the tumulus, its ritualistic circumambulation, and at the conclusion of the funeral rite, the placement of a funerary stone or other memorial marker on the tomb.

In addition, Indo-European historical and comparative linguistic studies corroborate both the archaeological and the literary evidence on the importance of the hero's quest for fame. As a case in point, the phrase 'imperishable glory' is an idiomatic expression reconstructed by Kuhn (1845) even in the proto-language itself: PIE *klew-os ṇgʷhdhitom; Gk kléFos aphthiton; Skt śravás áksitaṁ.

The various Indo-European language groups have preserved also a common vocabulary relevant to their burial practices. Some of these linguistic data even intimate a connection between singling out a particular individual because of the fame he has achieved and the subsequent construction of his funerary barrow: i.e., Greek thaptoo 'to honor with funeral rites' (Od 11.52); or even Latin sepelīre presumed by some scholars to be created on the basis of *sepelyo-, Vedic saparyati 'honors', < sap- 'serve, honor, love' (Buck 1949:292; Ernout-Meillet 1959:925).

A comparative study of the vocabulary related to interment reveals that a large part of the Indo-European terminology referring to the 'grave' derives, not surprisingly, from words with the meaning of 'bury'. In turn, these originate from lexemes with the meaning of 'dig'. The former are differentiated from the latter, usually, by the use of prepositional compounds with perfective sense (Buck 1949:292).

Other words are clearly indicative of etyma having the lexical meaning 'earth'. In these cases they are, generally, employed with the sense of 'covering with earth', and therefore, often assume the meaning of 'earth-mound': i.e., Latin interrāre < in terrā; humāre from humus, a suffixed o-grade form *(dh)ghom-o- from an old consonantal stem. Similar examples may be found in Welsh daearu < daear 'earth'; or even Old Norse jarda, Danish jorde, Swedish jorda from Old Norse jǫrð, 'earth'.

Finally, a number of words commonly employed for 'burial mounds' have cognates with the meaning of 'hill' as do Latin tumulus, Irish tomm, 'hillock', from a PIE suffixed form tum-olo- < *teuH,'swell'; Gothic hlaiw, Old English hlāw, 'mound', Old High German hlēo, 'burial mound', cognate with Latin clīvus, 'slope, hill' from PIE *kloi-wo-. Thus, linguistic evidence shows that in Indo-European languages, words used to refer to a grave vary according to the linguistic subgroup[4].

Yet, a case study of some of the terms used in Homeric Greek with reference to funeral mounds, might help elucidate the thesis of this paper. In particular, such an analysis might help demonstrate that status was often achieved in the Homeric epics through the performance of heroic deeds. Status achieved in this manner was a criterion of social differentiation (Della Volpe 1990b). Mortuary practices reflected this sign of social distinction conferred on the individual through the construction of a memorial barrow.

Hence, in analyzing the Homeric epics for a tally of the words used to indicate a funeral mound, we find that two terms occur most frequently[5]. These are túmbos < *tu-m-b(h)-, an extended zero-grade form of *tu-m- < *teuH-, 'swell', perhaps from a pre-Greek form *dhmbhos; and sēma < *dhyā-mn, a lengthened zero-grade form of *dheyH-, 'to see, look', Albanian dí 'I know' from the basic root form *dhyeA- 'perceive' (Huld 1984:152). Of the first two terms, túmbos, -ou m. is, generally, glossed simply as 'grave mound, barrow' (Cunliffe [1924] 1963:392) and provides us with the definitive meaning for both the term and its purpose. It designates a grave-mound which is, in effect, a monument erected to the memory of a hero. "I heaped a mound for Agamemnon, so that his fame might never be forgotten" (Od 4.584).

The other term, sēma, appears to be used in the Iliad simply as a synonym of túmbos, for both are employed to indicate a funeral mound (Cunliffe [1924] 1963:359). However, in opposition to túmbos, 'mound of earth or stone erected over a grave, grave-mound or barrow', the primary meaning of sēma, -atos, n. is not 'barrow'. Initially, the word did not refer to a mound of earth or stones erected over a grave. Rather, even in Homeric Greek, its primary meaning was that of 'distinguishing mark, sign, guiding mark' (Il 10.466; 23.326). Therefore, when applied to a burial mound, the term sēma signified a 'sign'. Indeed, we are clearly told by Homer that the barrow of Ilos is not only a grave, but also a landmark. As a grave it had been built as a sign of honor to Priam's grandfather, the founder of Ilion (Il 10.415; 11.166). Actually, it is because the barrow honors the fame of the founder of Troy that it becomes a landmark.

Thus, although both words are listed as synonyms, the instances in which sēma is used imply that a mound so designated includes reference to a 'distinguishing mark'. This 'mark' is the mark of fame. As such, sēma is the sign for a distinguished individual, one particularly worthy of honor. In fact, further investigation confirms that alternating the two synonyms is a literary device employed specifically for the purpose of

highlighting the difference in meaning between the two terms. For that matter, the context in which the word sēma occurs reveals that, in nearly every instance where the word designates a barrow, the Greek etymon includes, in its inferential meaning, the notion of individual 'honor'. As a case in point, when Andromache recounts how Achilles had slain her own father, she is sure to emphasize that Achilles did not despoil the body, and by so doing dishonor the deceased. Rather, as a sign of honor toward the vanquished, Achilles builds a sēma for Andromache's father and not a mere túmbos (Il 6.419).

Because a sēma is a mark of fame, a burial mound so designated may be a sign of fame and glory even for an individual simply slain by a hero (Il 7.86). In this case, a sēma, as a mark of distinction, a sign of eternal fame, is promised to the man who might die while fighting the glorious Hector. Hector, himself a heroic Trojan slain by Achilles, is dragged by the latter around the sēma of Patroclus (Il 24.16,51,416,755), before being awarded his own well deserved sēma (Il 24.799-801).

In the Odyssey, the term sēma refers to a burial mound only twice: "But if you shall hear that he is dead and is no more, then return to your own native land and heap up a mound for him" (1.291; 2.222); and again in the passage where the spirit of Elpenor asks Odysseus: "And heap up a mound for me on the shore of the gray sea" (11.75). In both cases, the usage is formulaic, but still honorific intimating, again, not merely a grave or even a grave marker, rather, in each instance it designates a commemorative mound erected, in effect, to honor the individual believed to be worthy of fame.

Apparent exceptions to the pattern of alternation reported here between the two synonyms find explanation in the context. For instance, the personalized and individual aspect of a burial mound as a sign of distinction is rendered, at times in Homer, also by the etymon túmbos. But in such cases, either reference is made to marking the grave for remembrance of the burial site beyond the funeral rite, or else, the term túmbos is accompanied by a word such as stēle. The employment of this literary device is made clear in the passage of the Odyssey where the spirit of Elpenor asks Odysseus:

> But burn me with my armor, all that is mine, and heap up a mound for me on the shore of the gray sea, do this for the wretched man that all who are to come will learn of me and erect in the mound my oar with which when alive I rowed with my comrades (11.74-78).

Here the oar functions as the stēle. Another supporting piece of evidence is provided by Euripides' Iphigenia in Tauris, where the following statement is made by Orestes:

> ....and heap up a mound for me, and
> place upon it memorials (702).

Thus, though the distinction in usage between túmbos and sēma seems not to be followed in every instance, the alternation of the two synonyms forms a consistent pattern. Further deviations can be accounted for by a closer scrutiny of the context in which the terms occur. And, in fact, a telling passage provides the necessary evidence to justify these other exceptions. When the Achaeans built a funerary mound for their many fallen comrades, they built a single barrow, a túmbos (Il 7.336; 435). This grave is still a memorial to them as a group, and could have been referred to as a sēma. But this mound is built for them as a group and not for a particular individual. What is more, there seems to have been no one warrior among the deceased who was so esteemed as an individual hero to warrant an individual mound, an individual mark of distinction, and thus a sēma.

Archaeological data also show some apparent exceptions to the characteristic burial practices. In fact, though individual burial is a primary diagnostic feature in the identification of Indo-European burials, the extant archaeological data also report, numerous secondary burials in mounds. This practice of secondary interments was particularly widespread during the Bronze Age and continued well into the Iron Age. An extreme example of this type of burial is found during the Hallstatt D phase of the early Iron Age. At the Magdalenenberg in Baden-Würtemberg, a mound over 100 meters in diameter and 16 meters high contained a total of 126 burials (Menghin 1980:98f).

Yet, far from contradicting our thesis, these finds provide further supporting evidence that the 'quest for fame' resulted in differential mortuary practices. These later interments appear to have effected a dual purpose; for while the individuals thus buried were supposed to bestow honor on to the central interment in the mound, at the same time, they themselves partook of the glory proper to the central and thus primary entombment.

While confirming the archaeological analysis, once again literary sources provide an illustration of the motivation behind the custom of multiple burials. In the Iliad (23.126), for example, Achilles, renouncing the right to his own funeral monument, asks to be buried in the same mound that he himself had erected for his friend Patroclus. This mound is referred to as

a sēma.

In fact, Achilles was not merely honoring his friend. Indeed, while subjugating his own status and claim to fame to that of Patroclus, Achilles was, at the same time, bestowing his own glory onto his friend. With this last act, Achilles insured Patroclus's claim to fame (Jones-Bley 1990). Their burial mound will be now a perennial sign of them, a memorial to their deeds; in other words, a sēma and not simply a túmbos.

To sum up, the fame sought by the Indo-European hero and the ensuing funerary monument were both part of an Indo-European ideology inspired by the ultimate desire to seek glory and recognition; for these criteria were means of achieving status in the society (Della Volpe 1990b). This status differentiation was reflected in mortuary practices by the differential treatment of the dead. This perspective explains the primary import of the burial mound within the Indo-European cultural complex. Its reflexes in the archaeological record are confirmed by the propagation of literally thousands of such funerary monuments across Europe, from the Russian Steppe to the Irish island.

In the same vein, the quest for imperishable glory is a feature widely reported by the Indo-European cultural traditions. The theme, celebrated in the Homeric epics, in the Aeneid, in the Poetic Edda, in Beowulf, is further elaborated in mythologies and religious ideology of descending Indo-European groups. The individual's quest for eternal fame is also corroborated by the existence of a common vocabulary. In this respect, our investigation suggests that in translating the Homeric epics the term sēma should be rendered as 'memorial'. The word túmbos, on the other hand, should be translated as 'grave mound', unless a word, i.e., stēle, ēs, or information within the context intimates the meaning of memorial.

Of course, most literary and archaeological documentation is confined to heroes and great leaders. The common man was, without a doubt, disposed of in a far less spectacular manner. Nonetheless, the epic tradition, the archaeological data and the linguistic evidence provide an insight on a criterion of differentiation employed in Indo-European societies. As such this feature is prominent in their mortuary habits. In fact, as a differential criterion, the quest for eternal fame may have figured prominently not only in the adoption of the custom of primarily single burial characteristic of Indo-European funeral practices, but may have influenced also the practice of secondary burial so widely reported by the archaeological record.

Thus, awareness of the symbiotic relationship of these three fields of study, that is, familiarity with

linguistics, literature and archaeological data, is a necessary prerequisite to a more accurate historical reconstruction.

NOTES

* In this paper we have used the numbering system to indicate the books of the Il(iade) and the Od(yssey), rather then the Greek alphabetic order. The book number is followed by a period and the line numbers in which the quotes may be found. Though the Loeb texts were used, the authors have altered the translations where they deemed necessary.

1. Beowulf, for example, even though the "mildest of men and the gentlest, kindest to his people" was also "the most eager for fame" (Donaldson 1966:55). Even in the Poetic Eddas there are many examples of the quest for fame in the belief that "fair fame will live for ever" (Hollander 1962. ver. 76). For further supporting evidence on this theme, see literary works in specific language groups, i.e., Ovid Ars Amatoria 3; Il 12.393; 11.394; Pliny the Younger 2. epist. 1 sec.3; Virgil, Aeneid 1.609; to name but a few.

2. Typically, the Indo-European burial mound covers a pit. Earlier forms often had a stone cist within the pit. Later structures were made of wood, creating a "house-like structure" (Jones-Bley 1990:221). This structure is then covered by an earthen mound.

3. Indo-European burial custom included cremation as well as inhumation. It is well known that Homer reported cremation, which was practiced during the Greek dark Ages, as a burial practice of the early Mycenaeans who in reality practiced inhumation.

4. Of interest here is that the word 'kurgan', first adopted by Gimbutas to identify Indo-European burial mound, is not a word of Indo-European origin, rather, it is a Turkic loan into Russian.

5. A third term: ērion, probably a derivative of ēra, 'earth', from *wēr-, Skt wāra, vṛnōti, is used only once throughout both the Iliad and the Odyssey. Specifically it occurs when Achilles plans Patroclus's barrow (Il 23.126).

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THE DILEMMA OF QUANTITY OR QUALITY IN INTER-PHYLUM ETYMOLOGIES

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As we have recently seen an upsurge of interest in "Nostratic" and other research that deals with distantly related language-groups or phyla, I feel an urgent need to face one great difficulty besetting all such research: The evidence is, inescapably, less clear-cut and conclusive than in comparisons between closely related languages. Indeed a little experience is enough to turn most linguists away from what appears to be a relatively unrewarding effort; for the results must disappoint anyone whose expectations were based on the rich triumphs of Indo-European comparative grammar in the nineteenth century: thousands of manifestly cognate words, besides inflections that are even more impressive to a scholarly mind. I speak as one deeply engaged in inter-phylum research, for all its difficulties, and I want to make it as scientific and trustworthy as the material allows.

Around the turn of the century there was one prominent and genuinely methodical pioneer, Hermann Möller (1850-1923), besides a number of other scholars [1] and amateurs who shared, to some extent, his interest in finding the connections between Indo-European and Semitic. His voluminous research, published first in Danish and later — much expanded — in German, gained some respect but very little acceptance. As late as 1955, the Indo-Europeanist Joshua Whatmough, who was well disposed toward Möller's quest but at the same time skeptical, wrote to me that Möller's entire comparative dictionary (316 pages long, with well over a thousand entries) contains only a dozen valid etymologies — roughly one per cent. I myself, years later, came to the conclusion that Möller had scored considerably better than that; but Whatmough's disappointment was still justified, because the great bulk of Möller's etymologies are quite shaky by any sensible standard.

Möller had one immediate successor worth mentioning, Albert Cuny, who had begun with a sharply critical review[2] of Möller's other magnum opus,

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[1] The greatest of these was Holger Pedersen, and it was he that proposed the term *Nostratic* in an article on "Türkische Lautgesetze": "Sehr viele Sprachstämme in Asien sind zweifellos mit dem Indogermanischen verwandt; vielleicht gilt das für alle diejenigen Sprachen, die man als ural-altaisch bezeichnet hat. Ich möchte alle mit dem Indogermanischen verwandten Sprachstämme unter dem Namen 'nostratische Sprachen' zusammenfassen. Die nostratischen Sprachen nehmen nicht nur in Europa und Asien einen sehr breiten Raum ein, sondern sie erstrecken sich auch bis nach Afrika hinein; denn die semitisch-chamitischen Sprachen sind meiner Ansicht nach zweifellos nostratisch" *(Zeitschrift der Deutschen Morgenländischen Gesellschaft,* 57 [1903], 560).

In my opinion, Möller's finest work is his *Vergleichendes indogermanisch-semitisches Wörterbuch* (Göttingen: Vandenhoeck & Ruprecht, 1911).

[2] In *Bulletin de la Société de Linguistique de Paris,* 14 (1905-7), ccxliv-ix.

Semitisch und Indogermanisch (Erster Teil, Konsonanten), but before long was won over to his side.[3] Then, for decades after the death of Möller, Cuny carried Möller's method further and published books and articles comparing Indo-European not only with Semitic but with Semito-Hamitic — i.e. including the languages of a large part of northern and east-central Africa that resemble Semitic in some striking particulars, although the dissimilarities are just as striking. When Cuny died in 1947, he had gathered no more adherents than Möller; but since then several well-qualified linguists, along with some industrious amateurs, have taken up his lead and Möller's, so that the field is burgeoning, undeniably if modestly.

The outstanding "Nostraticist" after Cuny was V. M. Illich-Svitych (1934-66), who unfortunately died as he was just beginning to publish the bulk of his research; his pupils and friends have slowly proceeded to edit more of it from his thousands of filing cards. His title, **Опыт сравнения ностратических языков (семитохамитский, картвельский, индоевропейский, уральский, дравидийский, алтайский)**, recalls the title of Marcel Cohen's masterly though much more restricted *Essai comparatif sur le vocabulaire et la phonétique du chamito-sémitique,*[4] but it also indicates that "Nostratic" for Illich-Svitych includes not only Semito-Hamitic (which American linguists prefer to call "Afro-Asiatic") and Indo-European, but also Kartvelian (or Georgian), Uralic, Dravidian, and Altaic. The published sections of his work consist of an introduction followed by a comparative dictionary with 378 entries, mostly on the order of Möller's or Cuny's, but Illich-Svitych draws upon many more languages.

The latest section (Moscow: **Наука**, 1984), running from "354. luńge '**снег**' [i.e. 'snow']" to "378. **qurE** '**любить**' [i.e. 'to love']", displays well the merits but also the limitations of his extremely ambitious research. In phonetics he is decidedly more rigorous than Möller, whom even the more sympathetic critics faulted for postulating too many complex deviations from the main types of correspondence. Yet Illich-Svitych too is driven by his unwieldy material to posit some particular phonetic developments rather arbitrarily. His own remarks, or his editor's — e.g. at the end of a 14-page entry on "p'irkA '**просить, спрашивать**' [i.e. 'to beg, to ask']" (pp. 111-125) — candidly acknowledge the difficulties of reconciling the disparate data he has been citing from Semitic and Chadic, from dozens of Indo-European languages, and from as many Turkic and other Altaic languages of Asia (besides a brief parenthesis on Dravidian); however, he characterizes the difficulties as "significant but not ultimately insuperable" (**значительних, до конца не преодоленних трудностей**).

His Nostratic prototype p'irkA is deduced or reconstructed secondarily from three prior reconstructions: Semito-Hamitic **brk* (< **prk*?), Indo-European

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[3] Already in *BSLP,* 16 (1909-10), cccxcii-vi, reviewing *Indo-europæisk-semitisk sammenlignende Glossarium* (the Danish forerunner of *Vergleichendes indogermanisch-semitisches Wörterbuch),* Cuny was much more favorable.

[4] Bibliothèque de l'École des Hautes Études, sciences historiques et philologiques, fasc. 291 (1947).

prek̂-/*pr̥k̂-* (which was well established before him), and Altaic **p'irlu/*.[5] On the semantic side, he states at the beginning of the entry that all three had the meaning 'просить**' ('to beg'), besides some meanings they did not share. But as we read through the paragraph on Semito-Hamitic, this meaning is not to be found in Semitic (where, instead, the verb means '**благословлять**' [i.e. 'to bless']). However, from one Chadic language, Tangale, he cites *"pere* '**просить**'"; and on the strength of that, supplemented by an Akkadian verb ***krb*** which can mean either '**благословлять**' or '**просить**' and thus opens up some possibility of prehistoric metathesis, he traces the meaning 'to beg' back to proto-Semito-Hamitic **brk* and thereby brings this alleged Semito-Hamitic verb-root into a Nostratic etymology. On the Altaic side, which is *terra incognita* to me, the main evidence for both a labial first consonant and a velar third is the variant ***pilgu, pilgi*** in some Korean dialects (*pírgu, pírgi* in North Korean), with a puzzling and perhaps garbled gloss '**стать вымоленным (вымолить), дать взаймы**' — i.e. 'to become insistent [?] (to obtain by entreaty), to lend'.

While this one entry occupies more pages in Illich-Svitych's book than most others, it is on the whole typical in setting forth the data at length and discussing them.[6] It is also average in the degree of conviction that it evokes; for it amounts, phonetically, to Indo-European sharing just two consonants with a Chadic language, and perhaps three consonants with some North Korean dialects. This etymology in itself would hardly persuade me that many thousands of years ago certain people, whose reconstructed language is called "proto-Nostratic", said p'irkʌ (or something close to that) when they meant 'beg', and that from this p'irkʌ came the words used in certain languages of three highly diverse phyla, even down to the present.[7] But it does not stand by itself; it fits into an attempt — an "essay" as Illich-Svitych rightly calls it — to systematize some five hundred etymologies so that the consistency of the diachronic development posited in them will sustain them all, more or less, while enabling us at the same time to reject many other proposed etymologies because they are incompatible with these.

I have singled out Illich-Svitych's work because of his standing (at least among those able to read Russian), and because my own research in part of the same field leads me to study him carefully. I am sure that no Nostraticist surpasses him; the others too, for the most part, list correspondences that feature two consonants, or sometimes three. I further venture the opinion that those who do inter-phylum etymologies with less well documented languages, outside the "Nostratic" areas of Europe, Asia, and Africa, can scarcely be achieving better results than his. Whether or not they term their work an etymological essay, it deserves to be read as such. His reconstructed prototypes have, in any case, one

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[5] In general he stars the prototype reconstructed for each phylum, but — strangely enough — not the more remote Nostratic prototype.

[6] The publication includes bracketed entries, which he or the posthumous editors judged to be shakier than the rest but still worth sharing with the readers.

[7] E.g. the everyday Italian expression of politeness ***prego*** 'I beg' or 'I pray'.

attraction that should not be minimized: they are not, like Möller's and Cuny's, so heavily consonantal as to be almost unpronounceable. That is because he factored in certain phyla — Altaic in this particular etymology — which treat the vowels as no less fundamental than the consonants, whereas Möller in his time had led the way in comparative grammar by demonstrating that prehistoric Indo-European was like Semitic in the subordinate function of vowels and the evolution of them from certain weak consonants.

Yet, for all that, a justified reaction to any one etymology of Illich-Svitych — or of subsequent researchers, unless they have better material — is "Possible but hardly cogent." So the next issue is whether the many such etymologies, taken together, will suffice through sheer quantity, even if not strong enough individually. As I see it, this will depend on the predilections of the critic. One more proficient in mathematics than I may find a statistical criterion for upholding some large sets of etymologies, while refuting others. When and if such a criterion is proposed, I would do my best to try it out. Meanwhile I argue that we have an alternative: inter-phylum etymologies that are fewer in number but of high quality. Whether these will take us back all the way to "proto-Nostratic" is beyond my present concern; but they do show us something worth knowing and appreciating about the prehistory of Indo-European and Semitic languages together, even if the remote "proto-Nostratic" should elude us forever.

A prime example is the combined etymology

Latin *cornu taurī* : Arabic قَرْنُ ثَوْرٍ {**qarnu ṯawrin**} 'bull's horn',

in which the Arabic genitive ending — when it occurs at the end of a verse — is pronounced [-ī] instead of [-**in**]. Both the Latin and the Arabic nouns have extensive Indo-European and Semitic cognates, but only in these two languages is the match so perfect. If not for the corpus of Arabic poetry, rooted in the pre-Islamic oral culture, we would know nothing of this alternate ending [-ī], preserved as a poetic license for the sake of rhyme. On the Latin side, it is unclear whether in the classical period (for which our information is most precise) the vowel at the end of *cornu* varied between long and short in the nominative (and accusative) case;[8] in Arabic the nominative ending is short. I go into this fine point, because in such a detailed correspondence no discrepancy, however small, is irrelevant.

Any linguist, unless hopelessly prejudiced, must acknowledge that the resemblance between the Latin expression and the Arabic is not accidental. For it defies belief that some utterly unrelated language, awaiting discovery in a distant part of the world (where bulls and their horns are known), would by sheer coincidence contain these same two words in its vocabulary — along with the nominative and genitive endings. As Antoine Meillet argued that the Indo-European origin of French could be proved from the third person singular and plural of the

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[8] The metrical evidence is for *-ū*, but very meager. On the other hand, the ablative *cornū* is quite frequent; and that, along with the extreme scarcity of Latin words ending in *-ŭ*, may have tended to eliminate the anomalous *cornŭ*, which the Indo-Europeanists posited without regard to Arabic or other Semitic parallels.

copulative verb:
"Si l'on ne possédait pas le latin et si les dialectes italiques étaient représentés seulement par le français qui n'a plus l'aspect général d'une langue indo-européenne, il ne serait pas pour cela impossible de démontrer, par des détails précis, que le français est indo-européen. La meilleure preuve serait fournie par la flexion du présent du verbe "être": l'opposition de *(il) est* : *(ils) sont* . . . répond encore à celle de s[ans]kr[it] *ásti* "il est" : *sánti* "ils sont", de got[ique] *ist* : *sind*, de v[ieux] sl[ave] *jestŭ* : *sǫtu*. . . ."[9]
we could make nearly as strong a claim that Latin *cornu taurī* : Arabic {qarnu pawrī} proves a prehistoric common source for these two languages.

But in order to make use of this Latin-Arabic etymology, the "Nostratic" strategy would have to posit
(1) that proto-Indo-European, a few thousand years before the Latin language emerged into history, already had something nearly identical with *cornu taurī*;
(2) that not only proto-Semitic but also — before that — proto-Semito-Hamitic (= proto-Afro-Asiatic) had something nearly identical with {qarnu pawrī}.
This would entail showing
(1) how the early Indo-European languages, closely related to Latin, deviated phonetically and morphologically in their prehistoric evolution so as to produce the Greek κέρας ταύρου, the Old Norse *horn piórs*, etc., while Latin, at most, changed one vowel in the first syllable;
(2) how the ancient Semitic languages, other than Arabic, kept neither the {-u} nor the {-ī} (although early Akkadian did maintain {-im} cognate to the Arabic {-in}), and the rest of the Semito-Hamitic branches — Egyptian, Berber, Cushitic, Chadic — lost all case-endings of nouns.

It would be very difficult — I do not say impossible — for the Nostraticists to adjust the reconstruction of proto-Indo-European that they have received from the Indo-Europeanists, and likewise the reconstruction of proto-Semito-Hamitic, so as to accommodate this impressive etymology. A lot of work went into those linguistic edifices; they are more than a mere house of cards, which one rock too heavy for it will knock down. The reconstructions are strong enough to repel the etymology — Latin *cornu taurī* : Arabic {qarnu pawrī} — from their gates as though it were some bastard, fundamentally alien to one language phylum or the other but born of a casual encounter, doubtless in a prehistoric time

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[9] *Introduction à l'étude comparative des langues indo-européennes*, 5th ed. (Paris: Hachette [1922]); cf. "Sur la méthode de la grammaire comparée," *Revue de métaphysique et de morale*, 21 (1913), 6-7), where he cited *ist* and *sind* from German instead of Gothic (repr. in *Linguistique historique et linguistique générale* [Collection Linguistique publiée par la Société de Linguistique de Paris, VIII, 1948], p. 25) . He often referred to these two verb-forms; and I remember reading somewhere his bold statement (which I am not able now to track down) that *est* : *sont* and *ist* : *sind* would suffice to prove that the French and the German language had a common origin.

but well after Indo-European and Semitic existed separately. It is easy to dismiss both nouns as loan-words; e.g. Illich-Svitych, in an important article, diagnoses the Indo-European *tauro-* as a loan from Semitic;[10] conversely, T. V. Gamkrelidze and V. V. Ivanov diagnose the Semitic *qarn-* as a loan from Indo-European.[11] Nostraticists and other inter-phylum linguists endeavor to set aside all loan-words, in order to identify the originally cognate vocabulary from the remote time of unity before the phyla split apart.

Nevertheless, loan-word or not, *taur-* and its Semitic cognate share a great deal of inflectional morphology; and the Indo-European and Semitic words for 'horn' share more inflections than just the *-u* of the nominative singular. Granted that *cornu taurī* : {qarnu þawrī} is by far the best two-word match, it should be only the starting point for further comparisons. Here I will summarize the ramifications of the latter word:

(a) Accusative singular — Latin *taurum,* Oscan (written in the Greek alphabet) TAYPOM, Greek ταῦρον, Lithuanian *taūrą*[12] : Arabic ثَوْرًا {**þawran**}, Ancient South Arabian {**þwrn, þwrm**} (vowels unrecorded), early Akkadian {šūram}.

(b) Nominative dual — Gr. ταύρω, Old Church Slavonic ТОУРА [**tura**] : Arabic ثَوْرَا {**þawrā**}, Akk. {šūrā}.

(c) Genitive dual — Gr. ταύροιν : Arabic ثَوْرَيْنِ {**þawrayni**} (pronounced [**þawrayn**] in a pausal position), Assyrian Akk. {šūrēn}.

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[10] "Древнейщие индоевропейско-семитские языковые контакты," in Проблемы индоевропейского языкознания (Moscow: Наука, 1964), pp. 3,10-11. But Alois Walde, *Vergleichendes Wörterbuch der indogermanischen Sprachen,* edited posthumously by Julius Pokorny, I (Berlin: Walter de Gruyter, 1930; repr. 1973), 711, maintained that this noun is from an Indo-European verbal root *"*tēu-* 'schwellen' [i.e. 'to swell']", and therefore was borrowed by Semitic. The semantic connection, however, between the noun and this (or any) verb is very shaky; the Sanskrit verb तू ता व {**tū|tāv|a**}, which is phonetically closest to *taur-* (although no such word for 'bull' occurs in Sanskrit), means rather 'he is successful' (Rigveda 1.94.2). When Pokorny revised the material in his *Indogermanisches etymologisches Wörterbuch,* I (Bern: Francke [1959]), 1083, he dropped the argument about a Semitic borrowing from Indo-European, while still treating this noun as a derivative from the same root.

[11] Индоевропейский язык и индоевропейцы (Tbilisi: Издательство Тбилисского Университета, 1984), II, 876; *ḳ* in their system of transcription is equivalent to *q* in mine, a consonant articulated further back than [**k**].

[12] The stroke under the last letter stands for nasalization of the vowel.

(d) Nominative plural — Latin *taurī* (-EI in preclassical Latin), Gr. ταῦροι, Lith. *tauraĩ*, OCS. ТОУРИ [**turi**]; cf. the Semitic construct plural — Aramaic תּוֹרֵי {toʷreʸ}, Hebrew שׁוֹרֵי {šoʷreʸ}.[13]

(e) Genitive plural — Gr. ταύρων; cf. Arabic ثِيرَانْ {þiʸrān} 'a lot of bulls' (pausal).

(f) Feminine derivative — Gr. Ταυρώ (epithet of the goddess Artemis), Latin *taurā̆* '(sterile) cow' : early inscriptional Aramaic שורה {**swrh**} 'cow' (Biblical Aramaic *תּוֹרָה {toʷrɔ́ʰ}), Phoenician loan-word in Greek Θουρώ (a goddess or divine cow).

The correspondence in the dual is even more significant than in the singular and plural. This Greek dual is documented in a passage of Apollonius' mythological poem *Argonautica* (3.410,1296 ff.), which tells of the hero Jason yoking two fiery bulls and making them draw a plow. At the stage in prehistoric animal husbandry when bulls were **tamed** to serve man,[14] dual number became more relevant in speaking about these beasts than it had ever been before. In this connection I must remark that when it comes to dual case-endings, Greek — astonishingly — has more in common with Arabic, a Semitic language, than with Sanskrit, an Indo-European language closely akin to Greek otherwise. Furthermore, apart from the dual, a noteworthy amount of noun inflection in early Indo-European and early Semitic shows a parallel or intertwined development, which is evidenced by quite a few nouns besides this one.

Illich-Svitych did not live to grapple with the following paradox: on the one hand, this very word is placed at the head of his list of prehistoric Indo-European borrowings from Semitic and therefore must logically be excluded from his inventory of words traceable as far back as "proto-Nostratic"; on the other hand, this word does more to prove a structural relationship between Indo-European and another phylum than the entire mass of his — or anyone else's — Nostratic etymologies. While he searched through hundreds of grammatical works and dictionaries for pertinent data, he never developed any **philological** acumen in Latin or Arabic or the related languages, so as to notice the details that really matter the most.

To me it suggests that quality in etymologies gets us further than quantity. But I stop short of arguing that the good etymologies (which I claim credit for pursuing rather than discovering) will reveal the core vocabulary of an ancestral language, the source of both Semitic and Indo-European — let alone the many other phyla that Illich-Svitych, the most far-reaching of all the Nostraticists, reckons with.

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[13] These Semitic languages have no cases, but the construct state — followed immediately by the possessor — is more likely to be used in a part of the sentence where Arabic, Akkadian, or an Indo-European language would require the nominative case.

[14] It took great prowess indeed, until men thought to castrate them while still calves.

I should at least mention that while this word is missing from Sanskrit and other eastern Indo-European languages, it turns up in Estonian and Finnish as ***tarvas*** (nominative), referring to the wild aurochs or possibly the bison.[15] That is no wonder, since *taũras* occurs nearby in Lithuanian; but the metathesis of the interior consonants reappears only at a great distance, in Gaulish TARVOS and reflexes in the modern Celtic languages (Welsh ***tarw,*** Irish ***tarb).*** Apart from the nominative form, which has evident Indo-European but not Semitic cognates, the Finnish accusative-genitive ***tarvaan*** also appears to correspond to Lithuanian *taũrą,* Greek ταῦρον, etc., and accordingly even to Arabic {**ṯawran**}. But the many other Finno-Ugrian (or Uralic) case-forms do not.

Good inter-phylum etymologies, almost as unmistakable as this one, can be counted in the dozens rather than the hundreds; and a fair number of the words are under suspicion of not going back into the dimmest prehistory, but of having arisen instead within one phylum at some later prehistoric time and then passing over into languages of another phylum through bilingual contact. That does not diminish my interest in them; but if you set your sights on nothing but "proto-Nostratic", any such loan-words become a distraction, even an annoyance. You may indulge in a daydream about languages whose evolution was secluded from one another, like the giant land-tortoises studied by Darwin on their separate islands. But human communities are not like that, and probably even in the distant past they often had close contacts, including intermarriage.

In comparative grammar we discriminate as much as possible between words inherited from a proto-language and words borrowed subsequently from other languages; but our best hope for keeping them apart depends on data of high quality — more than brief glosses. Now some kinds of vocabulary, such as the names of articles traded from one nation to another, are especially liable to diffusion, along with the things themselves.[16] But also, under circumstances of intimate symbiosis, less obvious items diffuse. A well established instance is the Arabic preposition حتّى {**ḥattā**} 'until' going over into Old Castilian as ***adta, fasta, fata, hasta,*** etc. (now uniformly ***hasta,*** but with the initial consonant no longer pronounced).[17]

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[15] Being utterly ignorant of these languages, I cannot go into the difficult problem of identifying which beast is meant in texts from the time before both species were exterminated in the non-Indo-European countries bordering on the Baltic Sea.

[16] E.g. χιτών 'tunic' in Greek was surely taken from a Semitic source; the Hebrew כְּתֹנֶת {**kətónɛt̄**} resembles it most exactly, except for the feminine suffix {-**ɛt̄**} — the Greek noun being masculine. The Greek aspirate [**kʰ-**] followed by non-aspirate [-**t-**] confirms the evidence within Hebrew that the initial voiceless plosive was pronounced with aspiration — just as in English words like ***cut*** [**kʰʌt**]. See my article, "Grassmann's 'Law' in the Early Semitic Loan-word χιτών, κιθών," *Studi Micenei ed Egeo-anatolici,* 8 (1969), 66-75.

[17] Yakov Malkiel, *Theory and Practice of Romance Etymology* (London: Variorum Reprints, 1989), p. 66, attributes this borrowing to "the role played in medi-

We can prove that the Castilian noun *fiesta* — along with its Romance cognates, Italian *festa* (with [ɛ], not [e]), French *fête* — was borrowed from medieval Church Latin, not inherited from ancient Latin; for the stressed vowel was originally long, *fēsta,* as shown in the Greek rendering Φῆστος of the Roman masculine cognomen FESTVS, besides the related Latin noun *fēriae* 'holiday' or 'holidays' (where the meter of many verses proves that the first syllable is long). Had *fēsta* been handed down uninterruptedly in the vernacular, it ought to have come out **hesta* in Old Castilian; but in fact the Romance forms of the word were taken from a semi-learned Latin tradition that had lost the distinction between a long and a short vowel — at any rate, in this sort of phonetic environment.

We shall seldom, if ever, have the benefit of such delicate details, phonetic or semantic, when we deal with the **pre**history of distantly or hypothetically related languages. Nevertheless, some items do come with fuller and clearer correspondence than others, and these deserve our prime attention for whatever they can tell us. As for the rest, perhaps it would be feasible to rate them mathematically, so as to assign the least weight to the most dubious ones, without disregarding them entirely. Illich-Svitych (or his posthumous editor) made it indeed a habit to reflect upon each etymology before he proceeded to the next one, rather than implying that they are all on a par. If that sort of critical grading can be properly **quantified**, inter-phylum comparisons will then be on a firmer footing than if we allow each etymology only the gross alternative, *Either in or out* — i.e. either it comes from a certain etymon in the envisaged proto-language, or it simply does not.

Among the hundreds of Illich-Svitych's etymologies published so far, one of the best, in my estimation, is **balqa** '**сверкать**' [i.e. 'to sparkle or flash'] (#5).[18] Furthermore I can supplement it with a correspondence that extends to the vocalic — i.e. the morphological — structure, besides the consonants of the root:

Sanskrit भ्राटृ {bʰrāṭ} 'he/it flashed'

Syriac (Christian Aramaic) בְּרַק {**braq**} " "

He, like the other Nostraticists, limits the comparison of verbs to the root, viewing not only the prefixes and suffixes but any internal vocalic inflection as peculiar to each phylum. In effect this abstracts the verb from its actual use in known languages,[19] and puts aside the search for inter-phylum correspondences on the

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eval Christian Spain by Moorish land-surveyors." The *f-* was probably a grapheme for [h-], since words inherited from Latin such as *farīna* 'flour' were then pronounced by Castilians with [h-] both in their own vernacular and in their reading of Latin texts, whereas the original Latin *h-* as in *honor* had previously become silent.

[18] (Moscow: Наука, 1971), pp. 174-175. It goes back to Möller (above, note 1), pp. 29-30.

[19] The infinitive form in glosses — 'to flash', 'to beg', etc. — is merely a convention of modern lexicographers and grammarians. It had precedents in medieval

level of verb inflection. Now the extent of such correspondences has to be determined by particular research; my own in the Semitic and Indo-European languages shows that it is considerable.[20]

The parallel {bʰrāṭ} : {**braq**} is noteworthy for being nearly minimal in terms of phonology — one vowel pronounced between the second and third consonants, none between the first and second. That vowel, however, is wide-open, and in Sanskrit long; it is more than what would be barely necessary to make the sequence of consonants pronounceable. So it strengthens an etymology that already appealed to my predecessors merely on the basis of the three consonants.[21]

My conclusion is that we can afford neither to rely on the mass of inter-phylum etymologies, which upon scrutiny betray some serious weakness, nor to dispense with them as unnecessary. I would first exploit the modest core of strong etymologies that stand on their own feet; and I would also use them as a sort of touchstone or magnet, to detect any other nuggets of genuine metal lurking in so much rubble from those rickety reconstructions. For Möller, Cuny, and Illich-Svitych were clever, resourceful, methodical, and venturesome, and so are others who are still working; their research is not all in vain.

Latin formulas of definition, which did go back to the ancient Greek logicians; but no ancient grammarians cited the infinitive as though it were somehow more fundamental than the indicative or the imperative. See my article, "The Imperative in Relation to Other Verbal Forms or Functions," *The Sixth LACUS Forum 1979*, pp. 162-169.

[20] The latter half of my book, *The Indo-European and Semitic Languages* (Albany: State University of New York Press, 1971), deals mainly with verb inflection. Since that was published, I have detected much more, which will be detailed in a subsequent book.

[21] The Sanskrit {-ṭ} may be either the *sandhi* treatment of /j/ at the end of a word or possibly a simplification of a virtually unpronounceable cluster of the [j] (or some such consonant) + the suffix [-t] for the third person singular. (The present tense is भ्रा ज ते {bʰrājatē}.)

{**braq**} happens not to be quotable from the rather small corpus of pre-Christian Aramaic; but that it must have existed in the language, is likely from the clear cognates in Hebrew and Arabic. {bʰrāṭ} is attested only in combination with the optional though usual prefix expressing past time, अ भ्रा ट् {ábʰrāṭ} (Rigveda 1.66.6, 4.6.5).

From this root, but with variation between *r* and *l*, there is a derived noun that includes a cognate suffix, Hebrew בָּרְקַת {bɔrq|át} 'emerald' : Latin *fulg|us* 'flash of lightning' (a rare synonym of *fulgur*). The gap in meaning, though not hard to bridge, leaves this part of the etymology somewhat less cogent.

POSITION OF PHRYGIAN

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Et Phrygio stimulat numero cava
tibia mentis...
Lucretius

To this day, the belief that Phrygian is a marginal and not quite reliable source of relevant linguistic information is widely held. A few phonological and morphological features of Phr are usually mentioned as definitely established (although even the dichotomy *centum* ~ *satem* remains unsolved, cf. KRETSCHMER 1896, 229; DETSCHEW 1960, 146 and a new attempt to prove its *satem* character in DIAKONOFF, NEROZNAK 1985) [1], while the whole body of linguistic data one finds in Phr inscriptions is neglected [2]. It may be explained by the fact that HAAS 1966, a pioneering effort opening up certain new possibilities, is, however, interspersed with egregious mistakes and unhappy conjectures (mainly explained by the poor quality and limited number of inscriptions published before 1984), while the last book on Phrygian, DIAKONOFF, NEROZNAK 1985, is a regrettable step back even compared with the works of eighty years' standing (NEROZNAK 1978 makes it *two* steps).

The whole picture has been changed by BRIXHE, LEJEUNE 1984, an indispensable revision of the whole body of Old Phrygian (OPHr) inscriptions [3]. This critical edition has greatly improved the very foundation of OPhr studies. On the other hand, since HAAS 1966, the paleography of New Phrygian (NPhr) texts has been satisfactory. A new linguistic interpretation (established reading, grammatical analysis, tentative translation and paleographic revision) has been recently suggested in BAYUN, OREL 1988a,b.

My purpose here is twofold: *first*, to determine the limits of Phr in space and time, i.e. to indicate all the texts identifiable as Phr or written in dialects closely connected with Phr, and *second*, to describe the position of Phrygian within Indo-European (IE), or, more specifically, among the South-East IE dialects (Indo-Iranian, Greek, Armenian and, probably, some other), a group to which Phr is known to belong.

1. Limits of Phrygian

The list of OPhr inscriptions codified in Brixhe, Lejeune 1984 is presently subject to considerable amendments. The inscriptions I claim to be OPhr or to belong to local dialects of OPhr are as follows:

(i) *Moesian inscription from Uyuchik* (see Friedrich 1932, 140-142; detailed analysis in Bayun, Orel 1988c). Suggested number E-01 [4]. Found in *Phrygia Epictetus*, carved on a marble slab. Not earlier than Vth century B.C.Transcription: (1) ...*e*...*y*... (2)... [*k*]*a*...*a*[*n*]*e*...*a*... (3) [*l*]*a*[*mn*]*lava*[*yd*]*okse*[σ]·*a*[σ]*i oi* (4) [--]*a*[*dl*]*evasiy*·*a*[*g*]*lavoy*··[*t*.]*e* (5) [?]*epaviy iσ*·*anev*[*t*]*evey* (6) *a*[*t*]*oiapnekro*[*iu*]*nbatan*[*te*] (7) *i ikeσ*:*brateraiσpatriy*[*io*]*iσk*. Translation : "... [5] will give the name to the people free of enemies and to the splendid assembly (?). (He) leaves the dead to Attis the Unjust and leaves a monument to (his) brothers and heirs". Extremely close to OPhr monuments *proprie dicta*, the text displays a few dialectal features, e.g., σ ~ Phr dentals before *i* (3d sg. pres. -σ ~ OPhr -*ti*, dat. sg. *aσioi* ~ OPhr *adioi* 'safe, free of enemies', B-01, dat. pl. -*aiσ*, -*oiσ* ~ NPhr -ουσι < *-*oisi*).

(ii) *Inscription on a seal from E.Herzfeld's collection* (see Haas 1966,176; detailed analysis in Orel 1990a,b). Suggested number Dd-103. IVth - Vth centuries B.C. A figure of a king (or a priest) holding two lions and a non-alphabetic sign. Transcription: (1) *mane* (2) *omen*. Presumably, *mane* is dat. sg. in -*e* < *-*ei* as in NPHr corresponding to a Phr royal name Μανης. As to *omen*, it may be 3d pl. impf. in -*en* as in NPHr (οπαδεν, N-69) related to Gk ὄμνυμι'swear, make an oath'. Tentative translation: "(They) swore an oath to Manes".

(iii) *Clay tablet from Persepolis* (see Haas 1966, 176; analyzed in Orel 1990a,b). Suggested number Pe-101. Vth - VIth centuries B.C. Transcription (interpunction replaced with blanks): (1) [----]*eke*[*s*...] (2) [---]*eke*[-]... (3) *kna*[--]... (4) ...[*ass*]*i kna* [-]*ka*... (5) *make*[-]*es*... (6) [...]*a*[-]*anamaka*. Two fragments, *kna*[--] and *kna*[-]*ka*, may be identified with the NPhr word for woman (N-116): gen. sg.κναικο, acc. sg. κναικαν while *anamaka* is probably borrowed from OPers *anāmaka*-,name of a month (literally,'nameless').

(iv) *Inscription from Kyolmen, Bulgaria* (see Beševliev 1965, 1966; Schmitt-Brandt 1967; Georgiev 1977, 121). Allegedly Thracian,it bears no resemblance to Thracian as represented by toponymical data and glosses. On the other hand, a few identifiable fragments as well as writing are extremely close to Phr. Suggested number Th-01. Trancription (interpunction

replaced with blanks): (1) *ebar* [*y*]*esas* η *e*[*g*]*es*[*t*]*i* [*σ*]*ek a*[...] (2) [*iy*]*as* [-]*ete*[*d*] [*y*]*ed e*[*i*] *dakat*[*r*] *s* (3) *blabaησ*. The subject of the 1st line (presumably followed by a direct object) seems to be *ebar* (personal name?) while *egesti* may correspond to OPhr 3d sg. fut. *egeseti* 'make, do' (P-04a). In the 2nd line, *iyas* is identical with NPhr gen. sg. fem. ιας, relative pronoun (N-116) while *dakatr* is easily identified with NPhr 3d sg. med. (αδ)δακστορ, (α)δακστερ, [δα]κιτορ 'put' (N-36, 40, 63, 72) followed by *s* ~ OPhr *si*, *s* 'this' (M-01b, 01d); *ei* may be compared with OPhr *ae*, *ai* 'if; and' (M-01, P-06), NPhr ει, αι (passim). Finally, *blabaησ* should be interpreted as 3d sg. aor. (as OPhr forms in *-aes*, *-ais*) of a verb related to (or borrowed from?) Gk βλάπτω, aor. ἔβλάβην 'stop, bar the way', later, 'harm, damage'. Tentative translation: "Ebar... made (this tomb?), of which...and installed this. (He) has barred the way".

(v) *Inscription from Sitovo, Bulgaria* (see PEEv 1929; RAKEVA-MORFOVA 1950; studied *de visu* by L.S.BAYUN in 1989). Suggested number Th-02. A definitely genuine inscription on a smooth stone stripe carved in a rock. OPhr writing abounding in ligatures. Not earlier than IIId century B.C. Transcription: (1) *ài viχusin viχu iptiu imin iptin sai* : *ku ioi* [*βa*]*χ*[*i*]*u ài*s *imin ζi* (2) *n uìχusi*. Phonetically, three features are worth notice: unstressed OPhr *-on(-)* > *u*, *-an* > *in* (similar change in NPHr); between vowels, OPhr *-k-* > χ (also observed in late OPhr); before *i*, OPhr *-t-* > *s*, *-d-* > *-ζ-* (cf. E-01 above). Commentary: *ài* - conjunction 'if', see (iv); *viχusin viχu* - figura etymologica reflecting IE **weikonti weikom*, cf. **weik-* 'holy, sacrifice': oth *weihs*, *weihan* (POKORNY 1959, 1128), *viχusin*, in contrast to *uìχusi*, has a *v* ἐφεκυστικόν; *iptiu* - acc. sg. adj. coordinated with *viχu*; *imin* - acc. sg. identical with OPhr *iman* 'cult model, figurine', NPhr ιμον, cf. Hitt *himma-* id. (BAYUN, OREL 1988a, 194); *iptin* - acc. sg. of a theonym, cf. Ἴπτα in Asia Minor, Hitt ^{D}*He-pit* (from Hurrian), in apposition to *imin*; *sai* - dat. sg. fem. 'this', cf. NPhr σαι id. (N-35, 69); *ku* - acc. sg. of a pronoun < IE **k^{w}om*; *ioi* - dat. sg. masc. 'who, which', cf. OPhr *yoi* id. (B-01), NPhr ιοι (N-86); *βaχiu* - acc. sg. of an adj. in **-yo-* related to OPhr theonym *vaki* (~ Gk Βάκχυς, Lyd *bakiva-*?); *ài*s -3 sg. aor. 'glorify, adore', cf. OPhr *ais* id. (G-117); *ζin* - acc. sg. 'god', cf. NPhr δεο- id. (passim). Translation: "If (they) devoted to Ipta her figurine for this (goddess) and glorified something (related to) Vaki for him, (they also) devoted (*or*: adored) this god's figurine".

The above inscriptions imply a radical transformation in our view of where and when Phr was spoken.

Irrespective of a formula with which we choose to describe the linguistic situation in Thracia and Moesia (Thracian and Moesian as fairly closely related to Phr or as Phr dialects), the inscriptions (i) - (v) seem to belong to the same linguistic tradition. It is, therefore, reasonable to use "Phrygian" as a technical term. The word "Thracian" may be reserved for a different language(s) represented by Thracian glosses, toponymy and the inscription from Ezerovo Thus, the Phrygian linguistic area in the 2nd half of the 1st millenium B.C. includes territories on both sides of the Straits: Phrygia, Moesian regions in Anatolia and parts of Thracia (to the south of Hebrus), a fact corroborated by ancient authors (Hdt. VIII, 73; Strab. VII, 295) [6].

2. Phrygian and South-East Indo-European

A number of grammatical features (including the augment) show that Phr is one of South-East IE dialects and happens to be closely related to Indo-Iranian, Armenian and Greek. The antique tradition (recently acquired by certain linguists, see Georgiev 1977, 223 and Diakonoff, Neroznak 1985, passim) considers Armenians to be Φρυγῶν ἄποικοι (Hdt. VII, 73). Although this indication is of great importance, it only establishes the fact that (Proto-)Armenians and Phrygians were neighbors but says nothing of the linguistic relationship. Moreover, the recent attempts to show that Armenian and Phr are particularly close linguistically are not based on any positive evidence and, thus, prove exactly the opposite [7]. The present writer is proposing that Phr is, in fact, intimately connected with Greek and that Phr and Greek form a distinct subgroup within South-East IE. The evidence consists of numerous lexical isoglosses as well as parallels observed in the morphology and, to a certain extent, in the historical phonology [8]. Syntactical archaisms of Phr are described in Bayun, Orel 1990.

First, we may note briefly some of the striking coincidences in the morphology and word-formation: (1) In OPhr two variants of gen. sg. of *o*-stems are found: *-oyo*, *-oio* < IE **-osyo* and *-ovo*, *-o* (phonologically, [o:] or [oo]) < IE **-oso*. The same forms coexist in Homeric Greek although the distribution of -ου/-οιο remains enigmatic [9]. The situation in Phr is much more transparent: *-oyo*, *-oio* regularly appear in adjectives while *-ovo*, *-o* is only possible with substantives as in *kakoio ittovo* 'of the bad fate' (G-02), see Orel 1986. (2) The oblique cases of Gk γυνή 'woman' are derived from an expanded stem γυναικ- (hardly comparable with Arm pl. *kanay-k* 'women'). Its

only exact parallel is found in NPhr: gen. sg. *κναικο* < **knaikos* ~ Gk *γυναικός*, acc. sg. *κναικαν* ~ Gk *γυναῖκα*. (3) Another case of a stunning parallelism has been noticed by KRETSCHMER (1932) in NPhr 3d sg. impf. *ιογειϝετ* 'keep' < IE **(e-)sghēk-et* corresponding to Gk *ἔσχηκε*. (4) Greek formations in *-ευς* (*βασιλεύς*, Cypr nom. pl. *Εδαλιεϝες*) may be compared with OPhr nouns in *-ev-ais* presumably derived from **-eu-s* (*-ais* also occurring in NPhr is not quite clear).

We can pass next to the full list of Greek-Phrygian lexical isoglosses. Below, Greek loan-words are not mentioned; dubious cases are marked with "?".

dat. sg. *adi[oi]* (B-01). See above.

dat. sg. *aglavoy* 'brilliant, splendid' (E-01) ~ Gk *ἀγλαός* < **ἀγλαϝός* (see CHANTRAINE 1968, 12).

ακαλας 'bad' (N-30), *ακκαλος* (N-33). Maybe, originally 'not beautiful', with an *ἀ ἐπιτατικόν* ~ Gk *καλός* 'beautiful' (probably from **καλϝος*).

akenanogavos 'custodian of sepulchres' (M-01a): composed of *akenas* 'sepulchre, monument' (W-07) and *-anog-avos*, nomen auctoris derived from a verbal stem 'manage, be in charge', cf. Gk epic perf. *ἄνωγα* 'order' (other IE languages have no traces of **ō* in this root, see CHANTRAINE 1968, 94; POKORNY 1959, 290). Myc *a-no-ke-wa* 'title or occupation' (PY An 192) may be an exact equivalent of *-anogavos*.

? dat. sg. masc. *anato[y]* 'unpunished, innocent' (B-01) ~ Gk *ἄνατος* id. Either a loan-word or an example of OPhr contraction **-awa-* > *ā*.

3d sg.opt. *anegertoy* 'erect' ~ Gk *ἀνεγείρω* 'arouse, erect'. In both languages the same prefix precedes the root with a prothetic **e-* absent in the Indo-Iranian cognates (see POKORNY 1959, 390).

dat. sg. masc. *anepaktoy* 'not alien' (B-01) ~ Gk *ἐπακτός* 'strange, alien'. Parallelism of word-formation.

arkiaevais 'elder, official' (M-01a): derived from *arki-* ~ Gk *ἀρχή* 'beginning, authority, power'. No immediate parallels outside Greek.

dat. sg. fem. *avtay* 'same' (W-01b), dat. sg. masc. *αυτω* (N-30), nom. pl. neutr. *αυτα* (N-30) ~ Gk *αὐτός* id. No cognates outside Greek.

dat. sg. masc. *evtevey* 'just, right', fem. *evteveyay* (B-02), dat. sg. masc. *anevtevey* 'unjust' (E-01) ~ Gk *εὐθύς* id. No convincing etymology (see CHANTRAINE 1968, 385). The parallelism in the inflection is striking: *evtev-* : *εὐθύς* ~ *evteveya-* : *εὐθε(ϝ)ῖα*.

gen. sg. *e[v]vu[io]* 'good' (P-01), acc. sg. *e[u]n* (P-06), *ev-* in composites ~ Gk *εὖς* id. < **esu-*. Different vocalism in Hitt *aššuš* and Skt *su-*.

gen.sg. *kakoio* ~ *itovo* 'bad fate' (G-02) ~ Gk Hom (acc. sg.) *κακὸν οἶτον* id. An important coincidence of archaic formulas. OPhr *kako-* ~ Gk *κακός* are isola-

ted (with the exception of Alb *keq* 'bad' < **kakyos*).

ke, particle preceding verbs in optative (W-01b) ~ Gk κε (hardly related to Skt *kám*, see CHANTRAINE 1970, 507).

? acc. sg. *keneman* 'niche' (M-01b) ~ Gk κένωμα, κενέωμα id. (derived from κενός 'full'). Contraction in Phr or a loan-word?

kermo[*s*] 'kind of vessel' (G-104) ~ Gk κέραμος 'vessel, jug'.

laua[...] 'people', dat. sg. *lavay* (E-01) ~ Gk λᾱός id. Probably also related to Hitt *lahha-* 'war'.

? *lav*[*age*]*tas* 'military chief' (G-01), dat. sg. *lavagtaei* (M-01a), mistaken for **lavagetai* ~ Gk λᾱϝᾱγέτας id., Myc *ra-wa-ke-ta* (PY An 724, Un 718).

acc. pl. μανεις 'wrath' ((N-69) ~ Gk μῆνις 'divine wrath'. Etymology unknown.

meneya, epithet of the Great Mother (B-01) ~ Gk (εὐ-)μένεια 'benevolence'.

acc. sg. *me*[*r*]*oun* 'part' (B-02) ~ Gk μέρος, -εος id. Both Phr and Gk words are *s*-stems.

? acc. sg. μοικραν 'small' (N-18), phonetically [mikran] ~ Gk μῑκρός id.

dat. sg. *mroy* (B-01), μ-ρο (N-58), gen. sg. μροσ (N-114). An abbreviation of the original **matrou(y)o-* < **mātrōw(y)om* 'temple of the Great Mother' ~ Gk τὸ Μήτρῳον (ἱερόν) id., τὰ Μητρῷα (ἱερά).

acc. sg. *opito*[*n*] 'punishment, retribution' (B-01) ~ Gk ὄπις 'divine vengeance, divine protection', cf. θεῶν ὄπιν οὐκ ἀλέγοντες (Il. 16, 388). The suggested connection between ὄπις and IE **okʷ* (CHANTRAINE 1974, 808) is not very convincing. The formation of OPhr *opi-to-*[*n*] reminds of Gk Hom Ὀπίτης.

gen. sg. *oro* 'top, height' (G-02), ορου (N-47, 92) ~ Gk ὄρος 'mountain, height', Myc *o-re-i* (KN B 7034), *o-re-a*$_2$ (PY Ep 705). Parallel nominal formations (derived from **er-* 'move, rise').

ορουενος 'heaven' (N-32, 33, 34 etc.), loc. pl. ουρνους (N-69) < OPhr **(u)orueno(i)si* ~ Gk οὐρανός id. The postulated prototype is ϝ(ο)ρϝανος (CHANTRAINE 1974, 838-839).

nom. pl. ουελας 'sun, heat of the sun' (N-42) ~ Gk εἵλη id. < *hϝέλᾱ, Lacon βέλᾱ 'sun, sunrise' (Hes.), γέλᾱν 'dawn' (Hes.). Parallel formations in *-a*.

3d sg. pres. ριδιτι 'install, fix, establish' (N-116) ~ Gk ἑρείδω id. No parallels in other IE languages.

σουβρα 'up to' (N-9) < OPhr **sobra* ~ Gk ὄφρα id.

acc. sg. *tekmor*[*an*] 'vow, pledge' (P-04a), τεκμαρ (N-116) ~ Gk τέκμαρ id.

acc. sg. *telemi* 'inner room' (B-01) ~ Gk θάλαμος, θαλάμη id. (etymologically dubious, see CHANTRAINE 1970, 419-420). NPhr θαλαμει id. (N-4) may be borrowed from Greek.

acc. sg. τιαν 'goddess' (N-14, 53, 99) ~ Gk τεά id. See τιος.

acc. sg. τιηιον 'divine' (N-58), phonetically, [teyon] ~ Gk θεῖος id., Myc *te-i-ja* (PY Fr 1202). Derived from an isolated Greek-Phrygian word for god (see below).

τιος 'god' (N-32, 33, 34 etc.) < OPhr **te(y)os* ~ Gk θεός id., Myc *te-o* (PY Eb 297, Ep 704) from **dhesos* or **dhwesos* (see CHANTRAINE 1970, 430).

υκε 'not' (N-2) ~ Gk οὐκ(ί) id. No reasonable etymology.

? dat. sg. *vanaktei* 'ruler, king' (M-01a), acc. sg. ουανακταν (N-69) ~ Gk ἄναξ id., Myc *wa-na-ka* (KN Vc 73 etc.). Phrygian is believed to be a Greek loanword, see CHANTRAINE 1968, 84.

acc. sg. masc. *venavtun* 'oneself' (W-01b) ~ Gk ἑαυτόν id. Unique composite of IE **swe(m)* and *avt-*, αὐτός (see above).

dat. sg. ζειραι, ζειρα 'evil god, spirit' (N-12, 106) ~ Gk φθείρω 'destroy, ruin' (hardly related to Skt *ksarati* 'flow' as suggested in POKORNY 1959, 487). NPhr ζ is a substitution of *dg-* reflecting the initial consonantal cluster of **g^whdher-* as in ζεμελως.

dat. pl. ζεμελως, ζεμελωσι 'chtonic deity' (N-21, 40, 63, 75 etc.) ~ Gk χθαμαλός. The IE source is **ĝhdhəmalos/*ĝhdhəmelos* (cf. also Lat *humilis*). NPhr ζ is not a *satem* development of **(dh)ĝh* but, presumably, stands for a group *dg* graphically substituted by ζ as in ζειραι (see above).

* * *

The above evidence seems to prove that Phrygian (spoken in a vaster area than it has been believed before) shares various lexical and grammatical innovations with Greek, much more numerous than the isoglosses connecting it with other South-East IE languages (on Greek-Phrygian parallels in metrics and poetic language see OREL 1990b). The natural conclusion to be drawn from this observation is that Greek and Phrygian form a separate subgroup in the IE taxonomy.

NOTES

1. Phr is definitely a *centum* language, cf. OPhr *keneman* (see below), *akenas* 'sepulchre, monument' ~ Skt *asani-* 'sharp point', Gk ἀκαινα, *mekas* 'big' ~ Arm *mec* id., Gk. μέγας id. and the like. On the special treatment of **ghdh-*, **g^whdh-* see below.
2. The problem of Phr glosses will not be discussed here.

3. Here I follow the traditional distinction between OPhr (VIIIth - IIId centuries B.C.) and NPhr (Ist - IIId centuries A.D.).
4. The established pattern is kept here: letters indicate the localisation of the inscription (*B* - Bithynia, *C* - Central Phrygia, *Dd* - "Documents divers", *G* - Gordion, *M* - town of Midas, *P* - Pteria, *T* - Tyana, *W* - West Phrygia), NPhr inscriptions have *N*-; lapidary inscriptions have numbers from 01 to 99, graffiti are numbered from 100.
5. The grammatical subject is presumably mentioned in line 2, of which only small fragments have survived.
6. Although Samothracian inscriptions are fragmentary and insufficient, they contain a few striking parallels with Phr. Cf. Samothracian *beka* 'bread (?)' ~ NPhr *βεκος* 'bread' indicated by Bonfante (1955).
7. The most important lexical isoglosses connecting Phr with Indo-Iranian and/or Armenian are: *akenas* (see note 1); 3d sg. impf. *sídeto* 'succeed, achieve' ~ Skt *sádhati* id. (cf. also Gk *ἰθύς* 'right, just'); acc. sg. *bagun* 'luck, happiness' ~ Skt *bhága-* id., Av *baγa-* 'god', OPers *baga-*; *ωναρ*, *εναρ* 'man, husband' ~ Arm *ayr* 'man', Gk *ἀνήρ* id. (note the prothetic vowel).
8. Cf. the development of IE **s* in Phr: it was preserved in the anlaut (where it was lost in Greek), auslaut and consonantal clusters but disappeared between two vowels.
9. The complicated situation in Homeric Greek can hardly be explained semantically or metrically.

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THE HIGH PRIEST WAS NOT A CONSTRUCTION ENGINEER: A PHILOLOGICAL CASE STUDY

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What is the etymological meaning of Latin *pontifex*? The most obvious answer, 'bridgemaker', is problematic, since Roman pontifices did not build bridges. Faced with this discrepancy, etymologists from Varro onward have proposed numerous hypothetical connections between the pontifices and bridges. Varro himself (de Lingua Latina 5,83) guessed that the pontifices had built and later had often repaired the Pons Sublicius, the first bridge across the Tiber, although in this he contradicted the opinion of the learned pontifex maximus Q. Mucius Scaevola. However, tradition records that the pontificate originated many years before the Pons Sublicius was built (Livy 1,20;1,33). Given the general unreliability of Varro's etymological speculations, this evident folk etymology has been far too widely accepted, both by the ancients (Dionysius of Halicarnassus 2,73; Zosimus 4,36) and by some modern scholars (notably Bouché-LeClercq 1871:12-18; Mommsen 1911:1,219), although more recently it has been less favorably received (e.g., Ernout-Meillet 1959, s.v. *pontifex*).

It is true that the pontifices had a connection with the Pons Sublicius in historical times. In mid-May of every year, the pontifices, along with the Vestals and other officials and citizens, led a procession to the Pons Sublicius, where a number of human simulacra were cast into the Tiber (Dionysius 1,38). The origin and purpose of this ceremony are unclear; the objection to deriving the word *pontifex* from it is that presiding at this single festival was only one of the pontifices' ancient duties. Plutarch, who writes that this etymology was widespread in his day, pronounces it ridiculous (Numa 9), and most modern authors have likewise rejected it (e.g. Latte 1960:196, note 1; but cf. Smith 1870, s.v. *pontifex*, who supports it).

Faced with the difficulty of trying to connect *pontifex* with the Pons Sublicius, other authors have hypothesized a more general connection with bridgebuilding. Thus Rose, in the Oxford Classical Dictionary (1970, s.v. *pontifex*), writes that "the word... means one skilled in the important magic of bridge-making." Of course, there is no evidence that there was such a thing, in ancient Rome, as "the important magic of bridge-making." Other authors have attempted, therefore, to explain how such a function could have become important to the early Romans or their ancestors. Nettleship (1885:27-28) suggests that the ancestors of the Romans, during the wanderings which eventually brought them to Latium, had to cross a number of rivers; hence,

the role of bridgemaker became a significant one. This is of course possible, although no other wandering Indo-Europeans, who also had to cross rivers, found it necessary to have bridgebuilding priests. Bonfante (1937), accepting the theory that the Romans were the cultural descendants of lake-dwellers, stresses how important the role of bridgebuilder would be to such a civilization. However, this explanation falters if the lake-dweller theory is untenable, as many later scholars have concluded (Fugier 1963:163; Palmer 1954:35; Ernout-Meillet 1959, s.v. *pontifex*).

The problems inherent in trying to connect pontifices with the building of bridges have led many authors to abandon the idea that *ponti-* should be connected with Latin *pons,pontis* 'bridge'. According to Varro (de Lingua Latina 5,83), the pontifex maximus Scaevola explained the term as arising from some form of *posse* 'to be able' plus *fex* 'sacrificer', from a special liturgical sense of *facere*. The text of this secondhand report having become corrupt in the manuscript tradition, we cannot be certain exactly what Scaevola's interpretation was; modern etymologists impressed with Scaevola's theory have reconstructed it in several ways (see Evangelisti 1969:11-15 for further discussion and references). Plutarch (Numa 9) reports two similar proposals which were current in his day.

Modern etymologists have likewise sought to find some other meaning than 'bridge' for *ponti-*; i.e., to derive the first element of *pontifex* from some other Latin or non-Latin root. Indeed, the number of proposed solutions along this line is legion. For the reader who is interested, a concise discussion, with bibliographical references, of most of the better-known ones can be found in Evangelisti (1969:15-19); (see also Fugier 1963:162-163). Suffice it to say here that while none of these proposals can be absolutely ruled out, none has achieved widespread acceptance.

A final approach to the problem has been to accept that *ponti-* is derived from the root which meant 'bridge' during the Classical Latin period, but to deny that it meant that when the compound *pontifex* was formed. From the standpoint of comparative Indo-European linguistics, this viewpoint has much to recommend it. Latin *pons, pontis* is certainly cognate with Greek *pontos* 'sea', Avestan *panta* 'path', Sanskrit *pathi-* 'path', Gothic *finþan* 'to explore, to find', (see Walde-Hoffman 1965, s.v. *pons*, for further cognates). Hence, either in pre-Latin or early Latin times, *pons, pontis* most likely meant 'path' or 'way'. Since *pontifex* is undoubtedly an early formation, it may have originally meant 'waymaker'.

What sort of paths or ways would the pontifices have made, according to this theory? They might have made physical paths; perhaps as the leaders of wandering tribes, finders of paths for their people, or perhaps as early roadbuilders in Rome itself. Latte (1960:196, note 1) supports the physical pathway theory. However, he considers efforts to show how the early waymakers developed into the later priests to be hopelessly speculative. The only evidence, therefore, for his viewpoint is the disputed etymology of the word itself.

A more likely interpretation of the role of the waymaker is a metaphorical one. This explanation was first advanced, it would seem, by the ancient author Bosius, who called a pontifex "*sacerdos quasi pontem vel iter aliis faciens*" 'a priest such as makes a bridge or path for others' (quoted in Bouché-LeClercq 1871:12). Bosius seems to mean that a pontifex is one who opens a pathway connecting the human world with the divine. This idea has reappeared in a number of recent works (Dumézil 1966:583; Fugier 1963:165-171; Evangelisti 1969:27-53; Campanile 1982:292-297), with one addition: the attempt to find a Vedic waymaker priest corresponding to the Roman pontifex. It is the consensus of these latter authors that, while no exact cognate to the Latin word *pontifex* can be found in Sanskrit vocabulary, the idea of the waymaker priest is well-attested in Vedic texts. Hence, the idea may have been part of early Roman culture as well.

This is certainly the most attractive of the theories considered so far. However, there is one significant problem with it, a problem which pertains even more to all of the rest of the proposals we have mentioned. How do we explain the development of the historical pontificate from the supposed original functions of the waymaker priests? For the Roman pontifices, unlike their supposed Vedic counterparts, were not priests who, through the performance of sacrificial rites, connected men and gods (see Dumezil 1966:579-580, for the characteristics of Vedic 'waymakers'). They were the keepers of sacred lore, the expert advisors on matters religious, and the administrators of Roman religious machinery. It is worthwhile here to cite in full Livy's summary of the duties of the pontifices, so that we will have a full understanding of the problems involved in assuming that they were 'waymakers'.

> He [Numa Pompilius] next chose as pontifex Numa Marcius, son of Marcus, one of the senators, and to him he entrusted written directions, full and accurate, for performing the rites of worship; with what victims, on what days, in what temple, sacrifices should be offered, and from what sources money was to disbursed to pay their costs. All other public and private sacrifices he likewise made subject to the decrees of the pontifex, that there might be someone to whom the commons could come for advice, lest any confusion should arise in the religious law through the neglect of ancestral rites and the adoption of strange ones. And not merely ceremonies relating to the gods above, but also proper funeral observances and the propitiation of the dead were to be taught by the pontifex as well, and also what prodigies manifested by lightning or other visible sign were to be taken in hand and averted. (Livy 1,20)

A tempting hypothesis immediately springs to the mind of at least the Anglophone who reads this passage. The pontifices, it seems, were the ones

who knew the right way to perform any religious ritual; they were the ones who made sure that others did things in the right way. Could this not be the way implied by *ponti-*?

Here we risk contaminating our Latin etymology with our bias as speakers as English. While we might translate *ponti-* as 'way', we are not thereby licensed to assume the metaphorical extension of English *way* from the meaning 'path' to the meaning 'method'. Natural as such an extension may be to a modern English speaker, there is no basis for assuming that the early Romans understood *ponti-* to mean anything but a pathway; nor do any of the modern writers who accept the *pontifex* as 'waymaker' explanation assume such an extended meaning. We must accept, then, that if the pontifices indeed were waymakers, the ways they made were pathways connecting men and gods, not ways of performing sacred duties.

This being the case, how do we relate the recorded historical functions of the pontifices with the functions implied by the pathmaker hypothesis? For, unlike the Vedic pathmakers, the pontifices did not have much to do with the gods. Other Roman priests, the flamines, were holy men who, in their very persons, connected the human and divine spheres (Dumézil 1966:581-582). A sacrifice might also be seen as opening a pathway; however, although the pontifices took part in the occasional sacrifice, Livy and Dionysius make clear that this was not their primary duty. Other priests, public officials, and private citizens routinely offered sacrifices on their own. While they might ask the advice of the pontifices on how to conduct the sacrifice, the actual makers of the sacrifices would be the pathmakers. In the supposed Vedic parallel, on the other hand, the pathmaker was an active, sacrificing priest, who opened pathways for others' benefit (Dumézil 1966:579-580).

The problem, then, with the 'pathmaker' etymology is the same as that encountered with essentially every other etymology proposed for this word. How do we explain that the etymological meaning is not the same as the historical meaning? The easy answer is most plainly expressed by Rose, (OCD, 1970, s.v. *pontifex*): "In historical times the original meaning of their name was quite unheeded, and they presided over the state cult generally." This is quite a convenient solution; it now remains simply to explain how the pontifices shifted from their original function to their historical ones. Mommsen (1911:1,219), who believes that the pontifices were originally bridgebuilders, supposes that the pontifices started with the secret knowledge of measurements and numbers, which enabled them to move on to the regulation of the calendar and to other complex and learned matters. If, on the other hand, the name is connected with the annual festival at the Pons Sublicius, then the pontifices must have gradually taken on a whole host of functions unrelated to their quite specific original one. The change from pathmaker to historical pontifex is perhaps more plausible, if the archaic pontifices were already priests associated with carefully designed sacrifices, but we still must wonder how the pontifices assumed control over the entire

state religious machinery and lost their own primary role as sacrificers.

This paper will not examine in detail the many explanations tracing the development from some particular "original" meaning of *pontifex* to its historically attested meaning. If we accept that the pontifices of historical times did develop from some earlier priests with different duties, then many of the proposed etymologies mentioned above, and probably others not yet thought of, could be correct. Some seem more reasonable than others, but on the other hand, given enough time, the historical pontificate could have developed from almost any apparently unrelated institution.

There is another alternative. The standard assumption that the pontificate was not originally a governing body is motivated in large part by the difficulty of finding an etymology for *pontifex*. That is not its only motivation, however. Festus (185 [quoted by Bailey 1932:308,note 25]) records that the pontifex maximus, head of the college of pontifices and governing high priest of Rome, was inferior in rank, though not in authority, to four other priests: the rex sacrorum and the three greater flamines. In what has become the standard theory, Latte (1960:195-197) suggests, based on this evidence, that the pontifex maximus was originally inferior in authority to the rex sacrorum, and that over time aggressive pontifices maximi staged what amounted to a coup against the established religious authorities. Seizing every possible opportunity to take charge of some holy rite, these pontifices maximi eventually reduced the rex sacrorum to a position lofty in name, but devoid of power and practically devoid of religious duties.

Thus, etymological theories which claim an expansion and shift in the pontifices' functions seem to have outside support. Of course, there is evident circularity in the argument that, for etymological reasons, we must suppose that the pontifices once had a more limited sphere of influence; hence, we have outside support for an etymology that supposes that the pontifices once had a more limited sphere of influence. On the other hand, there is still Festus' testimony, and as Kretschmer (1919:212) points out, other Roman officials saw their duties augmented over the course of the centuries.

Interestingly, Kretschmer's other examples are from the sphere of politics, not of religion. Indeed, in religion, the Romans were notably conservative. To be certain, they welcomed religious innovations from the outside, but such innovations did not change the nature of ancient Roman cult; they were simply added on in agglutinative fashion. As examples of conservatism, we may cite the retention of flamines for ancient but, in the historical era, trivial gods (Bailey 1932:156); also the retention of the rex sacrorum, along with his lofty rank, despite his almost non-existent duties. We also must remember that the strongest proponents of religious conservatism, the guardians of tradition, were the pontifices (Bailey 1932:163).

As Dumézil (1966:102-103) points out, it is exceedingly strange, if there really was a pontifical coup against the rex sacrorum, that there is no record of it in the ancient historians, especially since the pontifical annals formed an important source for these historians. On the contrary, the passage from Livy

(1,20) above, in agreement with Dionysius (2,72), Plutarch (Numa 9), Cicero (de Re Publica 2,14), and the general consensus of the ancients, reports that from the beginning, the pontifices, and in particular the head of the college, the pontifex maximus, were intended to be the administrative heads of Roman religion. There is no hint of a struggle for power between the pontifex maximus and the rex sacrorum.

In fact, there is no support for the idea that the rex sacrorum ever had the superintendance of Roman cult. The origin of this position is described in Dionysius (4,74;5,1). After the overthrow of the monarchy, the leaders of the new republic, displaying the traditional conservatism of the Romans with regard to religious matters, did not wish to abandon those sacral events in which the kings had taken part. Lacking a king, they decided to choose a *rex sacrorum* 'king of sacrifices' (sometimes also called the *rex sacrificulus* 'sacrificing king'). He replaced the king in his sacral functions, and the age-old fabric of religion was preserved.

The idea that the rex sacrorum became head of Roman religion when he replaced the king in religion makes sense only if we assume that the kings were the administrative heads and loremasters of the state cult. This idea of the priest-king underlies Latte's theory of the gradual diminution of the rex sacrorum's authority. Yet it is hard to see whence this notion arises. The Latin word *rex* is cognate with Irish *rí* and Sanskrit *rā́jan*, to name but two examples. In these two cultures, as in historical Rome, the regal and sacerdotal functions were clearly distinct. We have already seen that Livy reports that Numa Pompilius established the pontificate expressly for the sake of governing Roman religion, a task which no king is reported as undertaking personally. In short, there is no evidence that the kings were priests as well temporal rulers (see Dumézil 1966:102-112,577 for more extensive argumentation along these lines).

The rex sacrorum, then, was intended to replace the king purely in his personal role. Now a king, while not an expert on religion, was no doubt invested with considerable personal holiness as the head of his city. There must have been certain rites in which a man of such holiness was necessary--Rome's republican magistrates, who served only for a year at a time, would not have possessed that holiness. To ensure that the rex sacrorum's purity was maintained, he had to be a patrician born of sacred confarreate marriage, and he could hold no other office (Rose, OCD, 1970, s.v. *rex sacrorum*). As the successor of the divinely appointed kings and titular head of Rome for religious purposes, he was of higher rank, certainly, than the pontifex maximus, a less sacred though more authoritative official. Likewise, the three most important flamines, who were the earthly representatives of their gods, outranked the pontifex maximus in terms of personal holiness. Festus' ranking of the priesthoods is explained. There was no coup; the pontifex maximus controlled the state religious apparatus from the beginning.

The above suggests that the pontifices were not originally bridgebuilders, pathmakers, or anything of the sort. They were originally what

they remained into historical times. Now we must face the question, where did they come from? Linguistic analysis of their name has yielded a plethora of probably untenable hypotheses, and one possible similarity to Vedic cult. In the remainder of this paper, I will take a different approach. By examining the characteristics of the pontificate as they were in historical times, we may be able to identify the source of the institution; secondarily, this may shed some light on the source of the name.

First of all, the most central function performed by the pontifices was keeping religious practice in accordance with the dictates of tradition as recorded in the *libri pontificales*, the 'pontifical books'. It was by virtue of this ritual knowledge that the pontifices ruled the religious apparatus of Rome (Smith 1870, s.v. *pontifex*). They alone knew how to do things properly, including choosing and disciplining other priests, even their nominal superiors, the rex sacrorum and the three greater flamines (Rose, OCD, 1970, s.v. *pontifex*). Other of their duties resulting from their special knowledge were the regulation of the calendar (Dumézil 1966:111) and, as Livy mentions, interpreting lightning bolts and other visible prodigies.

In comparison with the priests of other Indo-European cultures, the pontifices seem out of place. To have all religion under the control of a set of non-holy bureaucrats guided by written regulations seems unusual. No modern authority has located any parallel in Indo-European culture to the Roman pontifices, beyond the suspect connection with Vedic pathmakers. In short, if we are to discover the origin of the pontifices, we would do well to look beyond the Indo-European heritage of the Romans. Either the pontificate is an innovation of the Romans themselves, or it is a borrowing from some other culture.

Modern scholarship makes plain that the most likely source of any borrowed Roman religious institution is Etruscan culture. The Romans themselves did not fully appreciate the influence Etruscan culture had had on their city during the archaic period; no doubt a history of mutual hostility following the monarchical period helped obscure archaic Rome's debt to Etruria. Today, we recognize that debt (see, for example, Dumézil 1966; Scullard 1967; Ogilvie 1976), and further recognize that it was nowhere more significant than in religion, of which Livy called the Etruscans the most dedicated of all practitioners (5,1). Among the elements of Roman religion borrowed from Etruria were the goddesses Juno and Minerva, who were honored along with Jupiter in the Capitoline temple. Rome's most important early temple, this edifice was built according to the Etruscan temple pattern (Bailey 1932:70; Scullard 1967:252). Another acknowledged import were the haruspices, who interpreted the future by reading animal entrails. The haruspices evidently came to Rome in the archaic period, probably when it was ruled by Etruscan kings (Dumézil 1966:606), but since they were rivals of the native augurs, interpreters of the flights of birds, it took many years for their science to become established.

The haruspices, we are told, based their readings on a set of books

which recorded their secret lore. This was only one of three kinds of books which were the basis of Etruscan cult. The others were *libri fulgurales*, which told how to interpret lightning bolts, and the all-important *libri rituales*, which detailed the proper form of religious rituals for almost all of public and private life (Dumézil 1966:633-672). The parallel between the *libri pontificales* and the *libri rituales* is striking. We might also add that Livy specifically mentions that the pontifices interpreted lightning bolts. What was the origin of those of their books which told them how to do the interpretation?

The idea that the pontificate is of Etruscan origin is at least worth investigating. Further evidence in favor of this hypothesis is as follows. First, the alphabet, and hence the art of writing, were probably introduced into Rome from Etruria (Scullard 1967:180); the pontifical books, of archaic origin, could have been among the first texts written in Latin. Second, the Roman calendar was very likely borrowed from Etruria (Dumézil 1966:113; Ogilvie 1976:37-43), and the pontifices had control of the calendar. Third, the legendary and perhaps originally historical king Numa Pompilius, instituter of the pontificate, traditionally a Sabine, had an Etruscan first name (Pauly-Wissowa 1937, s.v. *Numa Pompilius*). Fourth, the man Livy calls the original pontifex maximus, Numa Marcius, had this same Etruscan first name. Together with the evidence of the *libri*, these facts justify an attempt to reconstruct the possible introduction of the pontificate by Etruscan kings.

A cautionary note is in order. Archaic Roman history, particularly of the regal period, is murky at best, though modern archeology has shed some light on the subject. Any account of the regal period, then, will be controversial, but the following one will conform to a generally respected if not universally accepted viewpoint (cf. especially Scullard 1967:243-266). The comments about the pontificate are of course my own.

In about 700 BC, what later became the city of Rome was a small town or collection of villages on the Tiber. To the Etruscans across the river, Rome was the natural gateway to Latium and southern Italy. She naturally benefitted from trade and cultural contacts with the Etruscans. At some time in the seventh century, moreover, the first Etruscans king took power in Rome, perhaps displacing an earlier native dynasty. Over time, the Etruscan rulers built Rome into the leading city of Latium. In doing so, they brought in many native customs, including religious practices.

Of the priests brought to Rome by the Etruscan kings, the haruspices met with opposition from the augurs and did not achieve immediate institutional status. The same was not true of those priests whom the Latin Romans called *pontifices*. Before the Etruscans, Roman religion was a loosely organized affair, with various separate priesthoods, each with their own rules, subject to their own authority. This system worked perfectly well, especially when Rome was no more than a small Latin town. However, the Etruscan kings, who introduced greater complexity and control into government, must have wanted to do the same with religion. Moreover, as pious men, they wished to take care that religious rituals would be properly followed, not only

with regard to their own Etruscan ceremonies, but also in the native Latin rites as well. Hence they followed what must have been an Etruscan custom and chose a group of learned men, perhaps including Latins among them, who would guard the sacred ritual books, interpret their edicts, and add to them whatever seemed necessary to ensure the proper function of public and private cult. These men, appointed by the king to watch over religion, naturally supervised the other clerics as well to make sure that they performed their duties correctly. They also may have been entrusted with the *libri fulgurales*. Their leader, the high priest of Rome, was named the *pontifex maximus*, the greatest pontifex.

If this theory is correct, what does it tell us about the etymology of the word *pontifex*? Unfortunately, not too much. *Pontifex* could be a direct borrowing from Etruscan, like *Juno* and *Minerva*. It could be a borrowing reshaped by folk etymology, especially if the notion of priests as pathmakers was indeed prevalent in archaic Rome. It could be a loan translation, like *haruspex*; for some reason, the Etruscans may have called their priests waymakers or one of the other proposed original meanings of *pontifex*. It could simply be a Latin invention, used in place of an unfamiliar Etruscan word, like the term *lictor*. However, this last possibility should probably be discarded, since it would return us to the problem of why the Romans would have given the name *pontifex* to the pontifices, when none of the proposed etymologies seems appropriate their functions. Due to our lack of knowledge about the Etruscan language, it seems unlikely that we will ever be able to say much about the linguistic validity of the theory proposed in this paper. What we can say is that, based on historical, not linguistic, evidence, it seems likely that the institution and the word *pontifex* are related somehow to an Etruscan origin. At the very least, the Etruscan affinities of the institution make it very unlikely that the pontifices were originally builders of the Pons Sublicius or of other concrete bridges, either in the city of Rome or before the pre-Romans arrived in Latium.

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VIII

TYPOLOGY

SYNTACTIC COMPLEXITY IN GENETIC VS. TYPOLOGICAL RELATION

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INTRODUCTION

The Western language scholars' work on the genetic relationship between Korean (K) and Japanese (J) would seem to be compelling. Miller, Martin, and others (see references) have published several scholarly pieces on the language family of which these two languages are the easternmost members. The cultural history over the past 1500 years is reasonably well documented and the shared heritage from China -- both borrowed language and other cultural features -- can be identified and removed from consideration. Earlier historical investigation is obscured by the fact that each borrowed the concept of writing from China and wrote their early material in Chinese. Even with this difficulty, the correspondences posited in phonology, morphology, and syntax are "plentiful and striking." (Miller 1967a:83) Given only the work of those mentioned so far, the case for linguistics kinship seems to be complete. Yet, Miller has also noted that demonstration of correspondences is not proof. There can be hundreds of sets of correspondences between languages, even in precise detail, and yet there can be no genetic relation. (Miller 1967a:83) Chance similarities, borrowings, and restrictions based on human limitations of language variation may cause two unrelated languages to seem to be different historical products of a source language. Much work has been done on phonological and lexical features and much has been done on syntax. A difficulty often not noticed in earlier work on syntax is that

Subject-Object-Verb or SOV languages share dozens of typological syntactic features (Greenberg 1963; Comrie 1987, 1989, in press) based on their "type" and those close similarities cannot be used in an argument for genetic relationship. Before turning to some of the conservative syntactic features of Korean and Japanese, a brief section on SOV languages is included. Then follows some shared non-typological syntactic features which are analyzed to demonstrate the close correspondence between the two languages.

LANGUAGE TYPOLOGY

Structural similarity may result from genetic relation or it may result from general restrictions on human languages. Usually genetically related languages are also of the same type, that is, they are all SVO or SOV or VSO; exceptions seem to occur, but they are not the focus here. In the strictest terms, all similarities based on similarity of type should be stated and then ignored in working toward a demonstration that two languages are genetically related. Fairly few of the studies in the field take such an approach, but it might have helped scholars avoid some difficulties as will be mentioned later in this section,

The statements which can be made about the SOV type which includes Korean and Japanese are here presented as a representative list. They have been relatively well known for almost three decades now:

MAJOR SENTENCE ELEMENTS

Subject precedes Object in active, declarative, stylistically neutral sentences.
Object may optionally precede Subject.
Main Verb is last.
Grammatical markers are postpositional.

MINOR ELEMENTS

Genitive precedes the governing noun.
Questions particles are final in the phrase or sentence.
Adverbials in the Verb Phrase precede the Verb.
Inflected Auxiliary follows the main Verb.
Demonstrative and numeral precede the noun in that order.
Demonstrative + numeral + adjective + noun is the usual order.

In comparison, the order is Standard-Marker-Adjective.
A case system occurs.

WORD/SENTENCE LEVEL

Derivation occurs - because inflection occurs.
Derivational morphemes are always between the root and the inflection.
Conditional clause precedes conclusion.

Other general statements are given in the literature. The point here is that languages are cut to one of three patterns and the elements of the pattern cannot be used as part of the demonstration of genetic relation. The study over the last many decades has given the field much evidence on the syntactic systems of the world's languages. Perhaps it was the lack of adequate information that caused some earlier scholars to trace a common genealogical source for languages now seen as quite distinct historically. A half century ago Matsumoto (1928) summarized some of the major work on Japanese as a Malayo-Polynesian language. His statements about syntax are applicable to all SOV languages and so are useless for tracing roots. Once the syntactic similarities based on SOV type are discarded along with vocabulary borrowed from China, there is very little left on which to posit a relation.

SYNTACTIC COMPARISON

Earlier comparative linguistic work dealt with the surface manifestations of language, such as phonology and vocabulary. Such an approach first recorded the phonetic values in their diversity and then sought general principles to relate the phonological entities to other s within the same language and to others in language which might be related. As more information about syntactic systems was obtained, evidence from that part of language structure entered the picture. Now as studies are made, statements about the languages in question can be made on a general to specific pattern. Universal features of human languages can be made or assumed, typological features can be specified, and the shared features of the language family can be given in cases of related languages. In such a schema, the number of syntactic features shared by two languages might be quite small. It is in the more conservative areas of syntax, as in subjoined clauses of various types, that languages retain earlier features. The following several paragraphs treat features shared by Japanese and

Korean. As a type of control over the comparative process, examples are given from two other languages. Okinawan is a relatively close kin of Japanese and might be expected to share a few rules not shared with Korean. Quechua is an SOV language for which there is no linguistic evidence for relation other than typological. The area of syntax which is treated is limited to that of Noun Phrases. The focus is on the syntactic/semantic relations underlying the occurrence of one or another Noun Phrase marker rather than on the phonological shape of the marker.

COMPARISON

The major aspect of Noun Phrase syntax treated here is that which can be labelled case marking. In this short treatment, Topic marking, Subject marking, Object (direct, indirect, locative and directional) marking and Genitive marking are included.

Topic

In languages which do not have a "have" verb, "having" is often signalled by a sentence with the existence verb. The marker for the possessor is usually the topic marker and that for the possessed is the subject marker in Japanese. A capital letter preceding the number indicates the language: E is English, K is Korean, J is Japanese, O is Okinawan, and Q is Quechua. In the examples, only the grammatical items are indicated in the language.

E	The	man	has	a	book.
J	man	wa	book	ga	exist
		topic		subject	
K	man	nun	book	ga	exist
O	man	ya	book	ga	exist
Q	man	pa	book	nin	exist

In each case the verb is the existence verb. In J, K, and O, the possessed is marked by the subject marker. In Quechua, however, the possessed, which is otherwise unmarked, is marked for the person of the possessor: nin indicates the possessor is neither the speaker nor the hearer. Furthermore, the possessor marker is not a general topic marker, but the genitive marker which requires concord with the marker for the possessed. (Parker 1965:40)

In SOV languages, an optional order is OSV. In J, K, and O, the topic markers as noted above are used. Now see the Quechua example.

Q	Object	taqa	Subject	m	Verb	
	["Quechua	is what	X		teaches."]	

The Topic marker ga is added to the Object marker. The Subject shows concord with the Topic.

Subject

At times syntactic rules in non-main clauses seem to preserve earlier restrictions. For example, in modifying clauses in Japanese, the subject marker may be marked with the subject particle ga or by the genitive marker no. This particular rule is not widely found in SOV languages.

E	...	book that	X	bought	...
J	X	{ga/no}	bought	book	

The Korean and Okinawan examples show the same possibilities, while the Quechua uses the genitive marker.

K	X	{ga/e}	bought	book
O	X	{ga/nu}	bought	book
Q	X	pa	bought	book

Object

Four types of object marking are discussed here: direct, indirect, locational and directional. In the case of the Direct Object, all four languages used a marker, but Okinawan no longer uses it except in special historical styles. All four use a marker for the Indirect Object. The other two types of objects show distinctions.

Locational Object

With some verbs of activity, a location phrase which gives the location of the subject has a marker. The two types of sentences are illustrated here.

E	X	sleeps		in	Y
J	X	ga	Y	ni	Verb
K	X	ga	Y	e	Verb
O	X	ga	Y	ni	Verb
Q	X	-	Y	pi	Verb

Compare with a sentence which might be written as

E	X	being in Y			sleeps
J	X	ga	Y	de	Verb
K	X	ga	Y	esə	Verb
O	X	ga	Y	ʔNzi	Verb
Q	Y	pi	X	-	Verb

J, K, and O have a marker for each locational. Japanese de was written as nite in earlier Japanese and was a compound marker. Note that the Korean and Okinawan markers are similar in structure. The Quechua informant gave the reverse order of Noun Phrases for this structure, but the second example may be equivalent to the first.

Directional Object

Most languages seem to have a directional marker.

E	X	goes toward		Y	
J	X	ga	Y	e	Verb
K	X	ga	Y	e	Verb
O	X	ga	Y	ʔNkai	Verb
Q	X	-	Y	{man/ta}	Verb

In this case, Quechua uses the direct object marker ta as a directional marker only with human subjects; man may be used with any subject.

The similarity or even identity of phonological form in some example of J, K, and O is not the primary focus in this section. The syntactic rules governing the marker which is used are the main focus. In this example, Quechua uses a rather important rule to differentiate between subjects in assigning markers. The other three languages have no such rule.

Genitive

The major subdivisions of SOV languages in Greenberg are those with preposed and those with postposed adjectival modifiers. In each subdivision the genitive precedes. The semantic relation between the two nouns in the genitive construction varies, including such areas as: [First examples refer to "John's book".]

a.	X owns Y	Book may be elsewhere.
b.	X holds Y	Book belongs to another.
c.	X wrote Y	Book that John wrote.
d.	Y is in X [Tokyo no uchi]	House in Tokyo
e.	Y is an X [Sensei no tomodachi]	Friend who is a teacher

J, K, and O have a genitive marker which covers a, b, c, and d. (J and O may have e as well, but the O informants were divided on the issue.) The Quechua marker covers only a, b, and c.

J	X	no	Y
K	X	e	Y
O	X	nu	Y
Q	X	pa	Y

CONCLUSION

There are hundreds of syntactic rules which could be studied in a project such as that outlined here. From the few rules included above it seems clear that it is possible to analyze syntactic rules in such a way that it highlights the typologically shared rules and eliminates them from consideration in genetic relation. Close inspection may show that it is ultimately impossible to separate genetic and typological features that are shared; that is, the genetic relationship, if any, between two languages may be so remote in time that few non-typological rules are still shared. This problem will of course remain a problem as long as we must deal with reconstruction of pre-written materials.

One conclusion can be made is that the hypothesis that Japanese is related to Pacific island languages is not tenable. After the removal of items shared (if any) by phonological, syllable, morphological and syntactic type, Japanese shares only a minute number of features with any of the languages mentioned in Matsumoto. The occasional similarity can be attributed to chance alone. Syntactic typology is especially important here because lexical items can be borrowed and retain their "new" phonological segments, which in turn leads to a different inventory of sounds which in turn causes the two languages to appear more similar. Syntactic types, however, involve the whole structure of the language and are therefore impossible to borrow. The conclusion is that languages which seem to be related on phonological and lexical grounds must be subjected to a

close syntactic comparison to firmly establish genetic relationship.

NOTE

Grammars of the languages were supplemented by personal help from D. J. Lee for Korean, Seishin Noha and Mitugu Sakihara for Okinawan, and Gary Parker for Quechua.

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DISTANT GENETIC RELATIONSHIP AND EDWARD SAPIR*

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The name Edward Sapir (1884-1939) certainly needs no introduction to linguists and anthropologists no matter what their areas of specialization or concentration are.[1] He was a pioneer in the development of the theory of the phoneme, along with students of his such as Morris Swadesh, and he was, more or less, the inventor of the morphophoneme and morphophonemic analysis (see Sapir 1933). Thus he can really be seen as an early generative phonologist (see McCawley 1967). I even believe that all of today's generative grammarians, both syntacticians and phonologists, have read some Sapiriana, especially the 1933 paper mentioned above, although I readily admit that there does not usually appear to be too much "surface-structure" similarity today between Sapir's interdisciplinary and multidisciplinary linguistic interests and government-binding (GB) theory with its D-structure, X-bars, and theta-criteria. Consequently, transformational-generative linguists have little, if any, need to ever quote him (a major exception to this is McCawley 1967 and others). But, to be sure, his son J. David Sapir (the anthropologist and Africanist at the University of Virginia) makes the solid point that he was, nevertheless, very much a theoretician (1985:292):

> I doubt very much that he would have ever particularly objected to those infamous lines about the "ideal speaker-listener." He would have surely qualified them in a hundred fascinating ways, but nevertheless he would have understood what Chomsky was driving toward, and he would have been sympathetic, too. Modern theoretical linguistics is as much Sapir's heir as is our anthropology or our linguistic anthropology. We must not forget this.

Lo and behold, Sapir's "The farmer killed the duckling" is, in many ways, similar to Chomsky's "Colorless green ideas sleep furiously." Countless students have had both engraved in their brains.

Furthermore, many psychologists, psychiatrists, folklorists, philologists of all kinds, philosophers, sociologists and other specialists within the humanities and social sciences probably have had to

read at least one of his works in the course of their scholarly pursuits. After all, how many of the above have not heard of the Sapir-Whorf hypothesis? Moreover, there is, in all likelihood, not a single specialist in American Indian languages anywhere, presently working, who is not still indebted to him for one study or another. Indeed it is impossible to be in American Indian linguistics without having studied many of his publications. His work in this latter field, particularly in matters of classification and description, has been properly assessed in a recently published biography of the man and his times, Darnell (1990),[2] and has been vigorously pursued by Greenberg (1987). J. David Sapir (1985:295) tells us that Sapir's Southern Paiute (1930) is considered by many to be the finest grammar of any American Indian language written, and cautions today's theoretical linguists: "...if young theoretical linguists should truly take his lessons seriously to heart, future grammars will once again become rewarding and instructive documents to read and study."

I would consider him America's greatest linguist (general or otherwise) or, without any exaggeration and with all due respect to other great American linguists such as Leonard Bloomfield or Noam Chomsky, surely in the top two or three, and certainly one of the world's leading linguists of any age, right up there with the likes of Hugo Schuchardt of Graz (d. 1927) (coincidentally, see Schuchardt 1912 and 1913 for intercontinental linguistic connections), Roman Jakobson of Prague and Cambridge, Massachusetts (d. 1982) (coincidentally, once again, see Jakobson 1942), and a few others, such as Marcel Cohen of Paris (d. 1974) and Yakov Malkiel of Berkeley, still very active in his seventies (Sapir is, for me, the Rocky Marciano of linguistics).

The popularity of Edward Sapir has waned a bit from time to time and over the years due to the influence of another giant of American structural linguistics, actually his contemporary, Leonard Bloomfield (d. 1949); however, I believe it is fairly safe to say that both men and their writings, which are still widely read and appreciated by some linguists, have certainly left their respective marks on the entire field. In this regard one should note that Joseph H. Greenberg dedicated Greenberg (1987) "to the memory of Edward Sapir (1884-1939)" on an entire dedication page (cf. Dell Hymes' "In memory of Edward Sapir" in Hymes 1974 on a separate page, as well). Indeed, there are many parallels and common, overlapping interests between the careers of both Sapir and Greenberg (who never even met Sapir, incidentally),

which I hope to pursue in a separate study, since I was also a student of Greenberg's (Linguistic Institute, University of Michigan, Summer 1967).

The popularity of the approach generally known today as Neo-Bloomfieldian may easily be witnessed in some linguistic circles. (Of course, the name Charles F. Hockett needs no introduction to linguists along these lines.) In this context, I wish to inform the reader right at the outset that as an undergraduate student of Harry Hoijer (d. 1976) at UCLA and as a graduate student under Murray B. Emeneau and Mary R. Haas at UC Berkeley (all three of whom studied under Sapir at Chicago and Yale, respectively), I am very proud and feel very honored to designate myself as a Neo-Sapirian (Neo-Bloomfieldian as a term and as an entity has been around for quite some time, and the occasion is now ripe, I think, to begin speaking about Neo-Sapirianism) with Sapirian interests in languages with all their messy details, but, unfortunately, without Sapir's extraordinary breadth (Indo-European, Semitic, American Indian, Tibetan, psychology, culture and personality, etc.) and depth of knowledge (Southern Paiute, for instance), which I would have to say was unique with him. Besides, Sapir was a genius. All one has to do to be convinced of this latter fact is to look through his complete bibliography (Darnell 1990:457-473), which is unbelievably varied and enormous. He simply read everything about language, languages, and linguistics, and knew everything, or it seems as though he did. Suffice it to say here that there has not been a scholar quite like him anywhere in the world before or since. Thus it is not so difficult to see why his Collected Works are now being published in sixteen volumes by Mouton de Gruyter Publishers in Berlin, edited by Sapir's son Philip and six associate editors (see for some details Eramian 1988:387, fn. 4). To comprehend his remarkable versatility, one should bear in mind that in addition to his publishing in all the standard linguistics and anthropology journals of his day, he also wrote for such scholarly vehicles as Psychiatry, The Musical Quarterly, and the Journal of Experimental Psychology (see Kaye and Waltz 1990:368 and passim therein for further details).

Recent work by Joseph H. Greenberg on long-range historical comparisons using the principle of mass lexical comparison has released a fury of sharp criticisms by Lyle Campbell, James A. Matisoff, and many others. Thus distant genetic relationships are making headlines (witness the cover story on "The Roots of Language" in the November 5, 1990 issue of U.S. News and World Report, which treats Nostratic, Proto-World, and other related topics).

This paper focuses strictly on Sapir as a comparative-historical linguist, an interest he happened to share also with Leonard Bloomfield, an early Zellig Harris well known for his research on the Northwest Semitic languages during the 1930s, but not with other famous linguists such as Noam Chomsky or Morris Halle, pioneers of synchronics. Indeed, most of Sapir's students excelled as comparative-historical linguists.

Born in Pomerania, now Poland, it is not surprising to learn that he began his career as a student of Germanic philology at Columbia University. Although he switched to linguistics and anthropology after meeting Franz Boas, a German from Universität Kiel who founded the first anthropology department in the U.S.A. at Columbia, he continued, off and on, to publish in genetic linguistics, Indo-European, Semitic, etc., throughout his entire career of 33 years.[3] There is no need to devote much space to this fact since this is well-documented.[4] Also well known, but somewhat less understood, was Sapir's interest in distant genetic relationships (Sapir 1913a is particularly noteworthy in this connection). For example, since he had an excellent command of many Indo-European languages (he even taught Tocharian, which he called "a Tibetanized Indo-European idiom;" cf. Sapir 1936d:259), it is not surprising that he continued to be interested in this field, at least marginally, right up until his death.[5] As further evidence of this, one should note Sapir (1937) and (1938), not to mention (1936a), (1936b), and (1936c). However, first and foremost it is Anonymous (1925) which many linguists keep citing over and over again as evidence that Sapir was a historical-comparativist or megalo-comparativist of extraordinary proportions, yet whose work on Sino-Tibetan-Nadene never really led anywhere. As will soon become very clear, the purpose of these remarks is to set the record straight! An examination of this article reveals that it was not published in the periodical almost always cited in the various bibliographies, viz., Science (see, e.g., Greenberg 1987:401, Ruhlen 1987:273, etc.), in which Sapir did, in fact, publish many of his research findings (see Sapir 1910, 1911, and 1921). In fact, the article in question, i.e., Anonymous (1925), was not even written by Edward Sapir. It was, in all likelihood, authored by a journalist who badly garbled much of the information supplied, from notes of some kind (lecture notes?), or just plainly confused some of the facts which had been gathered, such as designating Sapir a Canadian (see the opening sentence of the article in question; although Sapir became a Canadian citizen

after World War I, he became an American citizen again in 1925). It was unsigned, and even though I tried to find out who wrote it, I was unable to do so. Although it is conceivable that the journalist received a garbled written blurb on Sapir's theory from someone (presently unknown), and this someone may have even learned about it from another source (also unknown) rather than from Sapir himself, it is also possible that Sapir did meet with the person or persons face to face. In that case we can explain Anonymous (1925) as a good example of the result of pure, human incompetence or stupidity. Charles F. Hockett (p.c., 1 December 1989) elaborates on this theory as follows: "The distortion in the Science-Supplement account is not unusual; it's just about par for the course. Don't beat the bushes to flush out the villians -- there aren't any. There is just normal human stupidity." There is also a strong possibility that the reporter heard a lecture or talk of some kind or even met someone who did (who would have supplied the information). Darnell (1990:466) concludes that Anonymous (1925), which she lists as Sapir (1925), is the "report of an interview," although Koerner (1984:212) is quite skeptical about this assessment saying only that it is possibly an interview. Perhaps an enthusiastic secretary or, more likely, an effervescent student or colleague of some sort met, on Sapir's behalf, with a reporter, or with an intermediary who in turn met with a reporter.[6] There are a vast number of possibilities which could account for Anonymous (1925), and I believe the entire story will one day be unraveled. What is crystal clear, though, is that this article has been falsely attributed for many decades now to Edward Sapir, and, in my view, it could not possibly have been written by him, although it is true that he did publish unsigned items, but these were definitely written by him and so properly belong in his bibliography. Therefore, it seems reasonable to conclude that Anonymous (1925) must be expunged from his bibliography. Thus I cannot agree with Michael Krauss, who has stated that it was written by Sapir but in the third person (1986:182). Insofar as I am concerned, this view is quite untenable. I thus offer the conclusion that this article should (from now on) be listed as Anonymous (1925) and not as Sapir (1925). Certainly if the author were known, which might still be a remote possibility, it would unquestionably be listed under his or her name. There might have even been more than one person involved in the writing and/or editing of the article.

So that the reader may make up his or her own mind concerning the authorship of Anonymous (1925), the

entire text is reproduced below. Darnell comments: "It is not his writing style and it oversimplifies the nature of a linguistic family more than he would ever have been willing to do" (p.c., 7 December 1989). I certainly agree with her, although Victor Golla remarks (p.c., 3 December 1989) that "certain terms and phrases very much resemble Sapir's manner of discourse: 'a wedge from Asia', 'a tonal accent', 'certain prefixes and suffixes...are clearly discernable in the early forms', etc. A good deal of the wording, however, seems to be the Science[-Supplement] writer's contribution...."

SCIENCE-SUPPLEMENT 62 (1925) [see under References for the full bibliographic details]

The Similarity of Chinese and Indian Languages

New light has been thrown on the ancestry of the American Indian by Dr. Edward Sapir, the Canadian anthropologist now on the faculty of the University of Chicago. Dr. Sapir said that his research work on Indian linguistics has convinced him of the identity of the language of certain Indian tribes with that of the primitive Chinese.

The similarity of the two tongues and the linguistic distribution of tribes scattered at random over the Americas have convinced Dr. Sapir that these groups must have entered this continent as a wedge from Asia. By a close comparison of the primitive Chinese, Siamese and Tibetian, all in the same language category, with the language of the "Nadine group" of North America, Dr. Sapir has found the same peculiarities of phonetics, vocabulary and grammatical structure on both sides of the Pacific Ocean.

The American Indian groups speaking the language of the Nadine group are found in all parts of the North American continent from northern Mexico to the southern boundary of Alaska, widely distributed among other Indian tribes whose language and customs are entirely different.

With minor changes the Navajo of New Mexico speaks the language of the Sarcee in Alberta, and the linguistic stock of the Tlingit, just south of the Eskimos in Alaska, is much the same as that of the Hupa in California.

It is probable, according to Dr. Sapir, that the migration of Asiatics speaking primitive Chinese or Tibetian took place at some time in the past, and that these immigrants settled or moved over the mountains and plains, some remaining in northwestern Canada to

> become the Tlingits, and others moving out to the Queen Charlotte Islands off the west coast to form the Haida group, and still others penetrating to the deserts of the Southwest.
>
> From the modern Chinese, which in academic circles is considered relatively simple, students of linguistics can reconstruct primitive Chinese which is far more complex than any of the dialects known to the Mongolian layman of to-day. Dr. Sapir has discovered not only that the raising or lowering of the voice to give certain meaning to words, in a manner similar to the tonal peculiarities of the early Chinese, but also that the meanings of certain words are identical. Further, he has disclosed the fact that the Indians have retained certain prefixes and suffixes that long ago have disappeared from the Chinese speech, but which are clearly discernable in the early forms.

Space prohibits us from commenting on every single detail of the above from the many angles with which one could pursue them. Moreover, the professional linguist will spot the places which betray the writer's misunderstanding; e.g., the Navajo speaks Sarcee ("with minor changes"), etc. However, several phrases and spellings are so odd that one is forced to deny authorship to Sapir's pen directly.

At first I thought it strange that the term "primitive" should be applied to a language since any linguist today knows that there can be no such thing as a primitive language; however, Sapir actually did use this term, even as late as the 1930s (see Sapir 1931a and 1931b). Further, he taught a course called "Primitive Linguistics" at Yale in 1933 (see Swadesh 1952:178), which was attended by none other than his student Morris Swadesh.[7] Indeed one wishes to know the exact details of the date on which this term became outlawed in linguistics.

What is uncharacteristic of Sapir is the spelling "Nadine" for Nadene or Na-Dene[8] and "Tibetian" for Tibetan.[9] Since these terms occur more than once, there is virtually very little possibility of entertaining a typographical-error or misspelling theory, at least as is conventionally understood.

I do not deny that the above article, more or less, accurately represents some of Sapir's views on the subject that it addresses. What is very much still a mystery to me, however, is why Sapir, who expressed his belief in this genetic unity many times in his private letters to several individuals (see Darnell 1990:128), would have wanted to see his theory in print in Science-Supplement and not elsewhere as, e.g., in Science itself.[10] We can only conclude that if he

believed in the Sino-Tibetan-Na-Dene genetic hypothesis with the same fervor as the completely novel rewriting of North American Indian linguistic classification from the Powell 1891 grouping of fifty-five families down to six, which he, in fact, published in Science (1921) under his own name as a one-page article, he would have certainly written something up himself and probably also published it under his own name in Science.[11] We may never know the full story of why this latter alternative was not selected.

Sapir, in writing (July 21, 1933) to a young Nicholas Bodman (who later became a Sinologist) when the latter was still only 19, stated: "It is true that some years ago I announced (emphasis added) that the Nadene group of America Indian languages might be remotely related to the Sinitic (Indo-Chinese) group of languages.[12] I still believe this is true but have so far not prepared my notes for publication."[13] The key word Sapir used here is "might" (emphasis added), which to me can only be interpreted that he did not quite believe in the evidence for this theory as he did for Nadene itself, for example; otherwise, he would not have written "might." He would have written, I surmise, "is" for "might be." No linguist would, after all, deny that all languages "might" be related. Most linguists would deny, however, that there presently exists evidence to prove this, for ultimately, it is the classical Neogrammarian comparative method which must serve as the final proof. Sapir goes on in his letter to Bodman: "...it is extremely dangerous to compare isolated forms from randomly selected languages."

Darnell has accurately assessed the hypothesis (1990:129): "None of Sapir's peers took seriously his contention that the evidence for this connection was of the same kind as that for the six-unit classification and the particular consolidations of linguistic stocks embedded within it." And further, one must agree with her when she writes (1990:131): "Indo-Chinese has received less attention from Amerindian linguists than any other genetic connection proposed by Sapir, although work by Robert Shafer (1952; 1957; 1969),[14] Joseph Greenberg (1987),[15] and Laurence Farget (1986) forms a partial exception."

I find A. L. Kroeber's response to the long October 1, 1921 letter that Sapir wrote to him about the Chinese-Indian connection, with a copy going to Berthold Laufer quite revealing, as there are very few reactions to the hypothesis preserved by peers (see Golla 1984:374-383; Darnell 1990:128 has erroneously reversed this stating Sapir wrote the letter to Laufer

with a copy to Kroeber). Kroeber had the following to say in a letter of November 26, 1921 from the Univerity of California, Berkeley in answer to Sapir's letter of October 1 (Golla 1984:388):

> I am sorry not to have replied previously to your interesting philological letter. I find it quite impossible to comment in detail without going over the data intensively and probably following them up with systematic work. Somehow I cannot trust my judgement as to resemblances very far without having some feel of the languages from which compared elements have been detached. So far as I can have an opinion under the circumstances, it is favorable. But in the last analysis I presume that in a case like this my opinion contains as its largest ingredient the conviction that Edward Sapir's judgement on such matters is sound.
>
> Can you come to much of a decision in regard to an article, for instance in the last number of "Anthropos" in which the language of Bornu (Kanuri, a Nilo-Saharan language: ASK; also Golla 1984:388, fn. 3) was linked with Sumerian (a language isolate: ASK)?

Sapir's answer to this letter is, unfortunately, not preserved. It seems to me, though, that Kroeber was being "polite" in his reply to the details of the Sino-Tibetan-Nadene hypothesis. Considering the circumstances and their relationship, how else could Kroeber have responded? I believe that I, pretty much out of respect and politeness, would have answered similarly.

Personally, I believe Sapir was somehow led astray into this Indo-Chinese-Nadene hypothesis because he did not know how to deal with the probability of coincidence, i.e., accidental resemblances. (Did he ever have a course in probability theory at Columbia or elsewhere?) He wrote to A. L. Kroeber and his Sinologist friend and old teacher of his, from Columbia days, Berthold Laufer on October 1, 1921 stating: "My evidence accumulates so fast that it is hard to sit down and give an idea." Darnell adds: "If the morphological and lexical similarities were accidental," (ibid.) (Sapir:) "then every analogy on God's earth is an accident" (ibid.). Sapir spent years researching this theory; then I believe he abandoned his <u>firm</u> convictions in its ultimate provability and thus lost enthusiasm for it, still thinking it <u>might</u> be true (again cf. the word "might" in his letter to Bodman cited earlier). I believe there is evidence that he thought, especially in his later years, it was a road to nowhere, i.e., he lost faith in it, however never to the point of retracting it. My reasons for

thinking this are as follows. Darnell (1990:130) reports that by 1930 he "was no longer willing to associate himself with the lunatic fringes of culture-historical reconstruction" because he turned down an invitation from Diamond Jenness, his successor at the National Museum of Man in Ottawa, to speak on "Asian connections of American languages," but in 1920 "this invitation would have been his priority" (Darnell ibid.). Mary Haas, his student at Yale, stated (Darnell 1990:131) that Sapir was "quite right to know it wouldn't be well received." Sapir knew that if he ever published on this (to use Sapir's own words here, to put it in "cold print"), he would be laughed out of the business. Insofar as Sapir was concerned, though, I suppose it was far less damaging to one's reputation to have this published in Science-Supplement where everyone (of no scholarly importance) could see it rather than in the American Anthropologist or International Journal of American Linguistics where real professionals, such as his teacher Franz Boas,[16] would see it. One can understand that it was quite another matter to "announce" a new, big discovery in a major periodical. Why he chose to "announce" his discovery in this manner is still far from clear. He obviously wanted it on the record, but why in this way? Since Sapir was always interested in languages, he thus continued to buy shelves of books on Sinitic and Tibetan during the 1930s (Victor Golla, p.c., 3 December 1989). He had also borrowed many of Laufer's books on Sinology over the years.

There is yet another possibility explaining Sapir's gradual loss of fervor, enthusiasm, and interest in the Indo-Chinese hypothesis. Fang-Kuei Li, a student of Sapir's at Chicago, who had "a remarkable interest in the Sinitic field" (from a Sapir letter, November 1926; see Darnell 1990:239), did not accept the Na-Dene-Indo-Chinese connection (ibid.). Further, Darnell states: Li "was an ideal collaborator for Sapir because he spoke several Asian tone languages" (ibid.). Li was written up and praised by Sapir in Sapir (1927); a photograph of Li was also published therein. Sapir wrote (1927:10) about Li as follows: "This is probably the first time in the history of linguistic science that a properly trained Chinese student has studied an American Indian language in the field." Sapir could, I think, not but be influenced by Li's opinion, especially since the latter not only spoke, but also was an expert in Chinese.[17] In support of my hypothesis, John Alden Mason (1885-1967) of the University of Pennsylvania Museum wrote to Sapir in a letter of August 13, 1927 about Li: "The presence of your Chinese student there should afford you instant

advice on your theory of Asiatic-Athabaskan relationships; I don't doubt that was your primary purpose."[18]

Another reason Sapir probably never published his findings on the Indo-Chinese hypothesis is that he knew Boas would be angered and shocked to see this research in print. I do not think Sapir ever contradicted his teacher in print nor would he have desired to do so. Sapir felt quite betrayed by Boas since he had supported Alexander Goldenweiser and then Truman Michelson for the Chicago faculty position that eventually went to Sapir in 1925 (Darnell 1990:199). It is really difficult to fathom, though, why Sapir would have suggested to Diamond Jenness (in Ottawa) in March, 1930 that Boas be the one to replace him on the program of Asian-Indian connections. Darnell reports: "Ironically, Sapir suggested Boas as the 'logical man' to treat the topic. Although Boas was familiar with Asiatic material because of the Jesup Expedition, he was hardly likely to argue for far-reaching genetic relationship or migration" (1990:130). Boas did not even believe in Na-dene let alone in its further extensions into Asia. Sapir thought it was a better strategy to keep quiet about the whole matter writing that "99% of one's fellow men are damned fools" (Darnell 1990:128, but Golla 1984:377 spells it "fellowmen"). Sapir stated in the sentence right before that (Golla ibid.): "Einem Narren zeigt man nicht die halbe Arbeit."

One of the hypotheses about Anonymous (1925) which I have been unable to pursue, unfortunately, comes from Pierre Swiggers, who has edited the Sapir-Bloomfield correspondence as well as the Boas-Bloomfield correspondence. He has suggested (p.c., 21 July 1990) that it is possible the information for Anonymous (1925) came from the Field Museum in Chicago where Laufer was employed.[19] He states: "...the latter hypothesis could receive some support from the fact that the articles surrounding the note deal with archaeology. I am also intrigued by the sentence: 'From the modern Chinese...Mongolian layman of to-day': maybe this comes from another information source than Sapir."

Swiggers examined Sapir's unpublished "Athabaskan Dictionary, Part 2, Sino-Nadene" (American Philosophical Society Library 497.3, B63c, Na 20a.3, Part 2 -- Film 1324). There is no theoretical statement or conclusion of any kind, according to Swiggers, and there are data from the following recorded therein: Primitive Chinese, Siamese, Tibetan, Athabaskan, Tlingit, and Haida.[20] Some of these data have probably been included in the July 21, 1933 letter

to Nicholas Bodman (see our earlier remarks on it); in that letter Sapir wrote out two pages of cognates (in his own handwriting) for the young Bodman.[21]

There is more to be found out in the Laufer-Sapir correspondence, which is in Ottawa. (Dell Hymes, p.c., 11 January 1990, reports that Morris Swadesh had examined these letters.) Unfortunately, I have been unable to examine any of them nor do I presently possess Dallaire (1984). This is obviously the next step in my research. This is a fascinating story to be continued; however, I am fully aware of the fact that not all the relevant details may be recoverable in their entirety.

In closing my presentation here, I cannot help but speculate how Sapir would have reacted to the concept of a Proto-World (or a Proto-Nostratic, which is on the way to Proto-World). Fred Eggan, a student of Sapir's at Chicago who is retired from the Anthropology Department at the University of Chicago, mentioned Kaiser and Shevoroshkin (1988) (p.c., 30 January 1990) and their discussion of the super families in Eurasia including Nostratic, which includes Eskimo-Aleut, Chukchi-Kamchatkan, Niger-Kordofanian, Nilo-Saharan, and Sumerian (among others such as Indo-European, Afroasiatic, Dravidian, and so on), Dene-Caucasian (Sino-Tibetan, North Caucasian, Eyak-Athapaskan, etc.), and Amerind (Greenberg 1987). Eggan notes that "it goes far beyond Sapir -- though I think he would be pleased" (ibid.). Old and New-World linkages are discussed in Ruhlen (1989), and Krauss' opinion is worth noting here (p.c., 7 December 1989): "The Soviet stuff is awful (e.g., Nikolaev, whose Eyak data, for example, come, he admitted to me, from the <u>index</u> [referring only to the stem under which the gloss is found] of my Eyak dictionary...)."

Based on Sapir's (1913) review of Meinhof (1912), I do not believe Sapir would have accepted today's Nostratic much less Proto-World. He was unwilling, for example, to connect Iroquois and Chinook with "Hamitic," so he definitely would have been unable to accept a Proto-World theory that all languages are genetically related. He wrote (1913:25):

> So highly individualized is the gender system of Hottentot that is is not easy to think of it as genetically related to that of Hamitic. After all, gender is not so rare a bird as some linguists seem to think it. It is found, for instance, in quite well-developed form in Iroquois (pronominal) and Chinook (nominal and pronominal); fortunately these are spoken at a safe distance in North America, so they cannot well be suspected of betraying Hamitic leanings.

Meinhof had classified Ful as "Hamitic," yet Sapir stated that he could "see nothing Hamitic about it" (1913:26), and further: "On the whole, to put it bluntly, I should not be at all surprised if further research demonstrated beyond cavil that Bantu and Ful are genetically related" (ibid.). Sapir turned out to be correct here since Ful (or Fulani) is Niger-Congo, and Bantu languages also form a subgroup within Niger-Congo (see Ruhlen 1987:82).

Sapir never challenged the "Hamitic" family of languages, yet almost no one today, except Switzerland's Werner Vycichl, accepts such a genetic unity. Greenberg, coming at the end of the era of anti-Hamitism in diachronic linguistic thought, is the linguist who helped demolish the "Hamitic" myth once and for all. So as with most linguists, Sapir was right on some things and wrong on others. Yet it is obvious that Sapir would not have tolerated an "anything goes" philosophy in genetic linguistics. Although he had nice things to say about Meinhof's 1912 book on the whole, he did note: "In general, I believe it to be rather disturbing that Meinhof is not infrequently inclined to desert tangible linguistic evidence for aprioristic psychologizing, always a facile and dangerous pursuit in comparative linguistics" (1913:27). Incidentally, there is not one Afroasiaticist working today that takes Meinhof (1912) seriously.

As I have stated earlier, there is, I believe, much more to tell as the story continues. But trying to figure out how geniuses think and operate is a very difficult and frustrating experience. Is it not ironic, though, that none of the megalocomparativists of today are willing to sit down with Sapir's cognates on Sino-Tibetan-Nadene, long available from the American Philosophical Society's Library, and work from there? We hardly know more in 1990 about Sapir's Sino-Nadene than Sapir did in 1925. I have, however, already expressed myself in several places about distant genetic relationship, so will not repeat those details here (see, most recently, Kaye 1989).

Notes

*I have discussed this paper with the following who offered useful information. Needless to say, the usual disclaimers apply. They are: John D. Bengston, Peter T. Daniels, Regna Darnell, Fred Eggan, Murray B. Emeneau, Victor Golla, Joseph H. Greenberg, Mary R. Haas, Charles F. Hockett, Dell Hymes, Konrad Koerner, Michael Krauss, Herbert Landar, Yakov Malkiel, James A. Matisoff, Kenneth L. Pike, Merritt Ruhlen, and Pierre Swiggers. Charles J. Fillmore was kind enough to correct an error I made during the oral presentation of the paper on August 8, 1990 at the 17th Annual Linguistic Association of Canada and the United States meetings held on the campus of California State University, Fullerton.

1. This paper has grown out of joint, coöperative research on comparative Afroasiatic linguistics with co-author Peter T. Daniels of the University of Chicago. Although it was I who first mentioned Anonymous (1925) to Daniels in this Kaye-Daniels joint research paper, it was Daniels who first read it to me over the telephone since I had not yet been able to retrieve it from my university library in California. In fact, I had to obtain it through Interlibrary Loan. I am thus delighted to record my indebtedness to Peter on this score as well as for his offering numerous helpful suggestions on an earlier version of this paper. Victor Golla was also kind enough to offer useful comments on a preliminary version of it. Needless to say, they cannot be blamed in any way for possible shortcomings which may still remain. Those are solely my own responsibility.

2. See particularly Chapter 6, "The Classification of American Indian Languages," pp. 107-131.

3. One of his first articles dealt with Sanskrit, Avestan, and Greek, viz., Sapir (1908). One of his last was on Indo-European and Macedonian, viz., Sapir (1939).

4. See for details Chapter 6 of Darnell (1990), "The Classification of American Indian Languages," pp. 107-131 and passim. Further, the reader is referred to Kaye (forthcoming).

Sapir was quite insightful in relating two California Indian languages, Wiyot and Yurok to the Algonquian languages (Sapir 1913a). This was finally considered proven almost half a century later when Haas (1958) appeared.

Since Sapir knew both Indo-European and Semitic languages very well and thought they were related (cf. scholars such as Saul Levin, Carleton T. Hodge, etc.), and since he was interested in both these families, it is difficult for me to explain why he did not publish anything in this area using the comparative method. In this connection, I find it highly significant that Greenberg (1987:332) puts Indo-European in a larger phylum which he calls "Eurasiatic," while Semitic (or Afroasiatic as a whole) is not placed there (see Greenberg forthcoming).

Greenberg is, furthermore, very skeptical of the Sapir-Shafer Chinese-American Indian hypothesis, for he states (1987:332): "The Sapir-Shafer hypothesis clearly requires investigation in a broader classificational context." Not only does Shafer relate Sino-Tibetan to Nadene (Shafer 1952 and 1957), but also to Uto-Aztecan (Shafer 1964 and Werner 1969) and to Indo-European (Shafer 1963 and 1965). See further Swadesh (1952), which is critical of Shafer in places. The world's language families, according to Greenberg (1987), consist of a separate Sino-Tibetan, Indo-Hittite, Nadene, and Afroasiatic (Ruhlen 1987:258). The field looks forward to Greenberg (forthcoming), which I predict will also generate a storm of controversy -- and much more than his 1987 book. In this connection, compare Greenberg's "Eurasiatic" with Shafer's "Eurasial" and "Pacifical" (see Werner 1969:61).

5. Sapir, it seems, intended to pursue, at least in part, his Chinese-Amerindian genetic connection for a full year during 1937-38 at Yenching University in Peking, China, although, I believe, he was still only mildly and tangentially interested in it. The Chinese-Japanese War forced a change in his plans, however. See Darnell (1990:408-409) for details. Victor Golla relates that (p.c., 3 December 1990): "...but my recollection is that he got as far as Hawaii and then had a massive heart attack. He was carried back to the US a semi-invalid and spent the year in a New York apartment. He unwisely resumed teaching the following fall, had another heart attack, and died that winter."

6. I have exhausted every possibility to try to find out exactly how this information was published in Science-Supplement, but all roads explored turned out to be dead-ends. However, Darnell (p.c., 7 December 1989) presents a "gimmic-theory" about the release of Anonymous (1925):

> The issue in 1925 was Sapir's appointment at Chicago which Fay Cooper Cole (sic) intended to spark the independence of anthropology from

> sociology at Chicago and the challenge of Boasian dominance of North American anthropology. The underlying issue was access to Rockefeller Foundation funding for the social sciences. That meant one had to make technical anthropological (and god help us, linguistic) work seem exciting to non-specialists. Sapir's link between Old and New Worlds was such a gimmick. Both Sapir and Cole would have, I believe, been willing to use the imaginative appeal of the Sino-Tibetan connection for these ends. The Chicago proposal to support anthropological research did not actually go to the Rockefeller Foundation until 1929 but it is the context for the Science[-Supplement] article nonetheless. There is some stuff in the local Chicago press releases which I recall as comparable.

This means that Fay-Cooper Cole might have actually announced Sapir's theory for or with him. The details are, however, lacking.

7. Regna Darnell relates that (p.c., 7 December 1989):

> Mary Haas believes that Sapir was no longer interested in distant genetic classification by the time he taught at Yale (after 1929 at least). He covered it in his classes because his students wanted him to but without enthusiasm. Swadesh in particular picked up on the distant classifications, resulting in glottochronology. Whorf and Voegelin were others who retained the interest from the earlier Sapir.

During Sapir's stay at Chicago, he taught primitive languages (see Darnell 1990:231). Its course description was "presumably" even written by him (ibid.). There is some evidence presented in Swadesh (1952) that he did present intercontinental linguistic connections enthusiastically. At least, Morris Swadesh sounded enthusiastic as he summarizes Sapir's findings at a 1933 course at Yale called "Primitive Linguistics" (1952:178). Swadesh states that Sapir "had not published his evidence (on the genetic relationship: ASK) because he wanted to work out more fully the detailed phonology on both sides of the Pacific. In particular he wanted to get farther along in his reconstruction of Athapaskan" (ibid.). Swadesh connected Nadene with Basque, although he did publish modern Chinese-Nadene cognates too, which he called "similarities" (1952:181). In this connection, it is important to keep firmly in mind that Sapir thought the real connections could be spotted among Tibetan, ancient Chinese, and Nadene -- not with modern Chinese,

which had diverged too greatly from Proto-Sino-Tibetan.

8. Sapir spelled Na-Dene three different ways in his writings, Na-Déné, Na-Dene, and Nadene, but (as Peter T. Daniels noted during the first telephone reading -- see note 1) "Nadine" was never one of them. The reporter in question probably heard [nádɨney] or [nadɨnéy] or the like and spelled it phonetically with an "i" for [ɨ], [I], or a schwa. Michael Krauss (p.c., 7 December 1989) suggests that the -dine spelling might be Sapir's rendering since he was heavily involved then with Navajo, and -dine is the Navajo version of dene 'person, people'. Thus there is virtually no chance of an original pronunciation [neydíyn], although, to be sure, this is how most lay readers (then and now) would have pronounced "Nadine." The origin of the term is explained by Sapir himself (1915:558). Darnell (p.c., 7 December 1989) comments in this regard: "[The spelling] Nadine is probably a misprint but conceivably someone else's adaptation of 'dineh', the Navajo equivalent of 'dene', person."

9. This error (which Peter T. Daniels and I also discussed during the night of the first telephone reading and subsequently -- see note 1) is most difficult to explain. Sapir would have used the term "Tibetan" (cf. Sapir 1936b). The most likely conclusion here is that the author, not knowing the adjectival form of Tibet, just copied "Tibetian" (pronounced by him or her as [tIbétiyɨn] or possibly, yet in my view quite unlikely, [tIbíyšɨn] on the analogy of the type Brazil, Brazilian; Peter T. Daniels does not accept the former possibility, but rather insists on the latter pronunciation). This is evidence in favor of a theory that the author received a written blurb on the subject from someone; I doubt very much if the writer could actually have heard a spoken form "Tibetan," no matter how it was pronounced, and then come up with the form used in the article. Then, too, perhaps someone's handwriting was unclear as this form got transferred. Of course, it is possible that the reporter just erred writing Tibetian for Tibetan (but twice?); however, I reiterate my feeling that this article does not seem to have been based on a face-to-face oral interview with Sapir because a reporter would have heard "Tibetan" from Sapir's lips (or even Fay-Cooper Cole's) and, presumably, would have spelled it correctly as well. An interview over the telephone seems even a less likely possibility. In that medium, too, Sapir would have pronounced the adjectival form as "Tibetan."

Sapir did write (Darnell 1990:130) to (Sinologist)

Nicholas Bodman in 1933 that he had "announced" the Indo-Chinese-Na-Dene relationship. Could he have meant that someone like his Chicago colleague Fay-Cooper Cole had an associate who gave the information to a Science-Supplement reporter (see also n. 6)? The acting president of the University of Chicago actually used this Indo-Chinese-Amerindian link in 1929 for funding purposes (Darnell 1990:130), but, it must be noted, this is four years after Anonymous (1925) was published. Since Cole brought Sapir to Chicago, and since Cole was the builder of the department around the super-star Sapir, it is likely that Cole served as the catalyst for Sapir "announcing" the Chinese-Amerindian connection. He might have even been the one who met with the reporter or who had the information sent in, although it is possible that this "announcement" might have originated from Ottawa (he was still packing at the end of August 1925 for his move to Chicago). Victor Golla (p.c., 3 December 1989) states his view that the interview probably took place in New York in August 1925 in conjunction with Sapir's having taught summer school at Columbia. That would have meant that Boas would have probably known all about it just as soon as it took place.

10. Science was headquartered in New York, but Science-Supplement, which came wrapped around Science back then, was prepared by Science News Service in Washington, D.C., the same organization which today produces Science News. I owe this information to Peter T. Daniels to whom I am most grateful, who also informs me that the Science News Service archives are in the Smithsonian. A letter Peter wrote to Robert McC. Adams, Secretary of The Smithsonian Institution and former Director of the Oriental Institute of the University of Chicago, failed (insofar as I am aware) to produce any further information. If one is lucky working in the Smithsonian archives, one may strike paydirt, and thus the full story here will become known.

11. At one time, I even speculated that Sapir did not want to see it published in Science-Supplement (where every Tom, Dick, and Harry could see it) because that would show Sapir to be a "collapsomaniac," collapsing any and all genetic units into larger macro-phyla. Although I had no real evidence for my original hypothesis, I entertained the theory that perhaps he had an enemy in Ottawa, or elsewhere, who was a dirty-trickster. I now think that these "embarrassment theories" were totally unfounded, yet I am still puzzled why Sapir never wrote anything up himself on

his "great" discovery. It is a fact that he never commented on Anonymous (1925) in print nor did he ever, insofar as I know, retract, publicly or privately, the intercontinental connection.

I have indeed tried to find out whether Sapir was, in fact, embarrassed for any reason when the article appeared and what he told his students, colleagues, and friends about it, however, very little information has surfaced. Darnell (1990:129-130) reports that Arles Hrdlicka, a Harvard anthropologist wrote to Sapir in November 1926 as a response to its appearance because he had a "long-standing interest in ties between North America and the Pacific islands" (1990:129). I do not know why Hrdlicka's response was written over a year after the article's appearance. I am not sure if I can agree with Darnell's remark that "it is unlikely that he [Sapir] appreciated such indiscriminating support" (1990:130). It seems to me that Sapir must have regretted the article's appearance, especially because it was so poorly reported. No scholar, let alone a linguist, likes to see such distortions.

Michael Krauss (p.c., 7 December 1989) reports that: "So after ca. 1925 he did no more that I know of on Nadene-Sino-Tibetan, and I think I've heard somewhere that he deplored the article [Anonymous 1925], regretted it."

12. Nicholas Bodman's report on Sapir's letter does not state how he found out about Sapir's discovery. He does not mention Anonymous (1925) in his cover report prefacing Sapir's letter to him.

13. This reason is also given by Swadesh (1952:178), but Swadesh adds (ibid.): "Sapir had found a sufficient body of cognates with regular phonetic correspondences to bear out the relationship." Now the question becomes, if this were true, why did not Sapir publish anything on it?

14. See under Shafer in the references herein. It is odd indeed that Shafer (1952:12) remarked that "Edward Sapir <u>once</u> <u>or</u> <u>twice</u> (emphasis added) mentioned that he had discovered such evidence" that the American Indians came from Asia via the Aleutian Islands.

15. One wonders why Joseph H. Greenberg never pursued the Sino-Tibetan-Nadene hypothesis in detail.

16. I would expect there to be a comment, preserved in correspondence, of the Boas reaction to Anonymous (1925).

17. Li, if asked by Sapir about Nadene-Chinese cognates, would have, I believe, been too polite to disagree with his mentor openly.

18. Darnell (1990:239) reports that in 1971, Li wrote to Mary Haas that he was "not convinced" of the Nadene-Indo-Chinese connection. How could Mason have thought that the intercontinental hypothesis was Sapir's "primary purpose" to bring Li along to work on Hupa in northern California? Li was merely a linguist being trained by Sapir to describe an American Indian language on the verge of extinction (see Sapir 1927).

19. Laufer (1930) states that he was affiliated with the "Field Museum of Natural History, Chicago, Illinois." Laufer moved to Chicago in 1908, and the Laufer-Sapir correspondence seems to have petered out by the time Sapir moved to Chicago.

20. One will immediately be struck by the similarity to the Science-Supplement wording and the wording used in the American Philosophical Society Library documents examined by Pierre Swiggers. I owe this information to Pierre Swiggers to whom I wish to record my gratitute.

21. I wish to thank James A. Matisoff for sending me a xerox copy of the original July 21, 1933 letter that Sapir sent Bodman plus Bodman's comments about it. Matisoff also was kind enough to include his own paper (five typewritten pages) "Proto-Sino-Tibetan and Amerind Lookalikes," by Efositam A. Semaj of Ainrofilac fo Ytisrevinu, Yelekreb (his name and institutional affiliation are spelled backwards because he did not want the article to look too serious!). His proposed cognates look excellent. He writes (p.c., 7 May 1990): "Strangely enough I felt no exhiliration in compiling this dumb list, just kind of a sinking feeling -- it's so easy to do!" His warning label on the top of the Efositam essay says it all: "Warning: The following material is intended for the private use of adults 18 years of age or older. The promiscuity of the comparisons may be offensive to some, and discretion is advised all around."

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STATISTICS AND NONCOGNACY

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When a word or bound element lacks cognates in two languages hypothesized to be genetically related, one of two conditions is likely true of the proto term. Either (A) it was replaced in at least one of them for one of three reasons: (1) culture change, (2) grammatical restructuring, (3) normal lexical attrition; or (B) there was no proto term.

It is easy in principle to test for 1 and 2 as likely explanations. Culture change and grammatical restructuring are often easy to spot, at least where the time depth is not excessively great. Moreover, only certain parts of the lexicon are likely to be affected. When 1 and 2 have been rejected as likely explanations, the choice is between normal lexical attrition, on the one hand, and, on the other, the conclusion that the languages did not ever share a proto term of this form and meaning.

This choice is of interest in more than one way. For example, it's of interest to linguistic paleontologists, who would like to know which lexical items - and hence which concepts - were used by the proto speakers. To them, whether a term existed or not is more important than reconstructing it.

Similarly, those who are evaluating whether or not two languages with some suggestive matchings are related may wish to know how likely it is that obvious noncognacy in items with other meanings is the result of time and lexical replacement, and how likely it is that it instead reflects the nonexistence of shared proto forms for these items. Provided the noncognate items are ones thought to be universal, or at least likely to have been present in the proto cultures in question, the former is consistent with relationship at a great time depth, the latter suggests that the languages may not be related at all.

One of the ways in which statistics may help such evaluation is by establishing replacement rates for lexical items in languages where these items are reconstructable, and comparing these rates with the apparent rates for the same items in a proposed language family where the proto form is not reconstructable. If the rates diverge markedly, statistics can tell us how likely it is that such a divergence occurred by chance.

The trick then is to distinguish lexical replacement of a once-shared term, on the one hand, from separate origins, on the other, e.g., parallel lexical innovation of terms of the same meaning or function - or separate inheritance from

unrelated ancestor languages.

If the term in question is relatively isolated in the lexicon, it may be impossible to tell the difference. For while some terms are replaced at very slow rates, making their replacement over relatively short periods unusual, these replacements are somewhat less unusual over longer periods.

Moreover, statistics teaches us that rare events do happen. They are really only rare in a single random comparison. If one keeps comparing more and more languages, they are very likely indeed to occur. For example, if there is only a 4 percent chance of something or other's being true of two unrelated languages picked at random, we would reject the null hypothesis (namely, lack of relationship) if we found that condition to be true in a particular case. We should do so with 96 percent confidence. However, if we went on a fishing expedition and examined 10 pairs of languages, and found one case of the condition, there would be a 40 percent probability that this was due to chance, and we would obviously not reject the null hypothesis.

Now what we linguists do when we examine languages with a view to establishing genetic groupings is much like the second case, only more so. For we may examine far more than 10 pairs of languages. It is virtually certain, under such conditions, that rare events will manifest themselves.

It is false to argue, for example, that the third person singular suffix -t is cognate in Micmac and Latin just because the suffix has a very low replacement rate in both Algonquian and Romance. (Phonetic loss through sound change doesn't count as replacement, of course.) It is false because Latin was not innocently chosen at random for the comparison, nor was the third person singular suffix. They were picked after a long fishing expedition, because they worked.

The lexically isolated item is thus generally something of a lost cause from the statistical point of view. One can perhaps cite exceptions, like the Indo-European nominative sg. in -s, but they are few. Generally, probability will not help us in establishing true cognacy for isolated items when they match, and it is equally unhelpful in establishing the likelihood that lexical replacement is the cause of their noncognacy when they do not.

What is more promising is the comparison of sets, be they sets of grammatical elements forming a paradigm, or semantic sets of some sort. Although we are here concerned with noncognacy, it is useful to begin by looking at the more familiar situation, suspected cognacy. For example, when one finds good matchings for the first, second, third, and indefinite person possessor prefixes of Algonquian in Yurok, it is hard indeed to attribute this to chance. Suppose one could attribute to chance alone finding as many as one language in ten with a good matching for one of these prefixes, what would be the probability of finding more than one? The probability

of finding two by chance is one in a hundred; of finding three, one in a thousand; of four, one in ten thousand. However probable it may be to find a good matching for any one of these (or perhaps even two), if one looks at enough languages, finding all four in some single language is surprising.

What we wish to propose is that it is equally surprising, operating under a research hypothesis of genetic relationship at some reasonable time depth, to find obvious noncognacy running through a set of related items. The prefixes would not be a good example here, since grammatical restructuring would be too likely. But some set of 4 highly stable items, shielded from the effects of culture change and grammatical restructuring, would.

Consider the names of the parts of a tree (for peoples living in areas which have trees). Suppose, as a hypothetical example, that we have calculated a lexical replacement rate for 'tree bark', for 'branch', for 'leaf', and for 'tree root'. Suppose they have a slow rate of replacement. As we have seen, any one of them could undergo lexical replacement in a few millennia (or even a few centuries), even though this would be a relatively rare event. However, the probability that all four should undergo this type of replacement is something that can be assessed statistically.

The probability of the occurrence of two or more independent events is the product of their individual probabilities. Thus, if the normal replacement rate is for 1/4 of these terms to be changed in 5000 years, the probability of 4/4 so being replaced in this time span is less than .004 (1/4 X 1/4 X 1/4 X 1/4). Generalizing, whenever the probability is very low that lexical replacement accounts for the lack of good matchings, one may wish to venture the hypothesis that noncognacy reflects unrelated languages.

Of course, no one would go to all this trouble unless there was some reason to think the languages might be related, i.e., the research hypothesis of relationship has to come from somewhere. A common reason would surely be large numbers of good matchings, which would lead to a tentative hypothesis of relationship. However, for languages that are or have been in contact with each other, directly or through intermediaries, diffusion may be a likely explanation. In such circumstances, a test using sets of items thought to be particularly stable and resistant to borrowing may well be of use.

A simplified and somewhat naive example may help illustrate the kinds of procedures we have in mind.

Mithun (1986) has argued convincingly that the absence of third person affixes on the verb implies a fixed (syntactic) basic word order. Hence, if one could show that some proto-language (PL) likely lacked such a third person suffix, it would be good evidence that the PL had syntactic rather than pragmatic basic word order. To the extent that fixed word order is a good predictor of other linguistic features, or the

absence of them, it might tell us a great deal about the syntax of the PL in question. From there, it might be possible to follow syntactic evolution over the centuries down into the daughter languages.

We began research on the present example upon noticing that, of the four Proto-Algonquian third person suffixes used in the main verbs of a clause, none seemed to have a Proto-Algic antecedent. That is, none had obvious cognates in Wiyot or Yurok. A pair of productive third person suffixes in the latter two branches of Algic did agree, but imperfectly: the Yurok one was plural, while the Wiyot one was singular (the marking of plurality is optional in Wiyot). The productive Yurok third person singular suffix was unrelated. Hence, the reconstruction of a third person suffix for Proto-Algic was questionable.

In contrast, productive suffixes provided TWO clear cognates each for the corresponding first and second person singular verb suffixes, and some were preserved in all three branches of the family. Assuming that the lexical replacement rate was comparable for the three person suffixes, this seemed to be a case where the actual replacement rate for the third person suffix was very different indeed from what one would expect.

We attempted to check the assumption of comparable replacement rates. We first looked at the fate of the 4 third person suffixes of Proto-Algonquian in its daughter languages, and found amazing stability. Apart from the replacement of whole paradigms, there were no replacements at all. That is, no third person singular suffix had been replaced unless its corresponding first and second person ones had been too.

Since the apparent high rate of lexical replacement in the Algic case could not be explained by paradigmatic replacements, we took this as evidence that our assumption of comparable replacement rates was reasonable. However, we were aware that Proto-Algic is a much older proto language than Proto-Algonquian, and that continued contacts among the daughters of the latter could have helped slow lexical change to a degree that was impossible in the Algic case since the Algonquian languages were far removed from Wiyot and Yurok.

So we ran a second test. Looking up Meillet's classical handbook on Proto-Indo-European, we again calculated replacement rates for the singular suffixes of intransitive verbs. We reasoned that PIE is closer to the age of Proto-Algic, and its languages somewhat more dispersed than the Algonquian ones. To our growing delight, we found that PIE retained its third person suffixes BETTER than either its first or second person ones.

With mounting enthusiasm, we tabulated the following numbers of apparently (con)tinued from Proto-Algic versus (inn)ovated forms:

	ALGIC		PIE	
PERSON	CON.	INN.	CON.	INN.
first	6	0	14	6
second	4	2	9	11
1st+2nd	10	2	23	17
third	2	5	8	2

Table 1. Continuations versus innovations.

Note that the 6 represents two first person suffixes in each of the three branches of the family, all inherited cognates; the 4 represents two continuations of Proto-Algic second person suffixes in two languages, and the corresponding 2 represents two replacements of these suffixes. The third person suffixes total 7 rather than 6 because Yurok has a noncognate productive third person singular suffix as well the third person plural suffix which is cognate.

First, we ran a Fisher's Exact Test on the third person figures (see table 1) in the two languages, i.e., row 1 = 2, 5; row 2 = 8, 2. The likelihood of these particular figures, if the replacement rates are really the same, is p = .052. Not quite significant at the .05 level, but close.

Next, we combined the first and second person figures for Algic into an 'other' category (row three in the table), and similarly compared them to Algic's third person ones, i.e., row 1 = 10, 2; row 2 = 2, 5. Here, p = .029. That is, the probability is less than 3 percent that the apparent replacement rate is the same in the two cases.

Finally, we tested for the combined probability of the Algic/PIE third person suffix comparison, and the intra-Algic one. We did this using Pierce's (1970) extension of Fisher's Exact Test for 2 x 3 contingency tables. The figures were: row 1 = 10, 2; row 2 = 2, 5; row 3 = 8, 2; p = .004. This striking improvement in results is due to the multiplicative nature of combined probabilities (i.e., the probability of 'both A and B'), and illustrates the usefulness of examining overall probabilities rather than only subsets of them.

At this point, since we assumed that the replacment rate in Algic should have been more similar to that of Indo-European (and Algonquian), we tentatively concluded that what we were seeing in the Algic case was not a genuine replacement rate at all. Rather, Proto-Algic had lacked such a suffix, and the apparent cognates in Wiyot and Yurok were parallel innovations.

We have said that this example is a naive and simplified one, merely used to illustrate a method. However, any real test of the method must ultimately deal with all the complexity found in the real world. In the present case, we have so far dealt only with the most obvious hypothesis available and with productive suffixes.

By the 'most obvious hypothesis' we mean the only one normally framed in the course of reconstructing proto languages: that a proto form existed just where a set of cognates are found. This is the only hypothesis that historical reconstruction by itself permits. However, every linguist knows that there may have been additional items in the proto language, which are unreconstructable because they have survived in only one of the daughter languages (or in none of them). The possibility of additional items has seldom been discussed because there has been no way of testing for them.

However, consider what our example is all about: finding evidence as to how many third person suffixes there were in Proto-Algic. The comparative evidence suggests one doubtful one; it cannot exclude the possibilities that there were zero, two, or even more.

The approach we have been pursuing here is one that looks at the statistical probabilities attached to the existence of proto morphemes. We began by testing for the existence of one, because that one was tentatively reconstructable. We found this assumption of one suffix untenable, since it would force us to accept - with a high level of confidence - a different rate of lexical replacement for this suffix in Algic, as compared to Algonquian and Indo-European. We do not find it plausible that replacement rates differ by language family, and concluded that Proto-Algic did not have one third person suffix.

Is it legitimate to test alternative hypotheses - less likely ones from the comparative perspective - or would this be what statisticians call a fishing expedition? Let us withhold judgment on this question until we have actually examined the more plausible alternative hypotheses, and thus understand their nature better.

Before going on, it may be helpful to explain how a change in our assumption about the number of third person suffixes in Proto-Algic affects the classification of the attested suffixes of the daughter languages. Notice that this classification is dependent on that assumption. If we assume no proto suffixes, for example, all the daughter suffixes must be innovations; if we assume six or more proto suffixes, all the daughter suffixes are likely continuations of the proto ones. Every intermediate hypothesis requires its own classification of daughter suffixes.

We may visualize this as follows, using arbitrary letters for suffixes and putting innovations in parentheses:

Proto-Algic	Algonquian	Wiyot	Yurok	CON	INN	
*A	(B, C, D, E)	A	A, (F)	2	5	(first hypothesi
*A, *B	B, (C, D, E)	A	A, (F)	3	5	(alternate 1)
*A, *B, *C	B, C, (D, E)	A	A, (F)	4	6	(alternate 2)

Under the first hypothesis there are 5 innovations, each represented by a new daughter suffix. One of them, in Algonquian, replaces *A - but this still counts as a single innovation. As we increase the number of assumed Proto-Algic suffixes from one (*A) to two (*A, *B) there is a net gain in continuity. There are only 4 new daughter suffixes now. *B is replaced by F (one of these 4) in Yurok, which still counts as a single innovation, and is leveled out by *A in Wiyot (one additional innovation). So there are still only 5 innovations, while the survival of *B in Algonquian increases the cases of continuity by 1.

Under the second alternate hypothesis there are only 3 new daughter suffixes, but *C is leveled out in both Wiyot and Yurok, in addition to *B in Wiyot - so the gain in continuity is matched by a gain in innovations. It is easy to see that this matching would continue if additional proto suffixes were postulated (and that past 5 there would be two new innovations for every additional proto suffix set up). Hence, it is obvious that the probability of retaining the null hypothesis peaks with the first alternate hypothesis.

Let us compute this probability. Fisher's gives (row 1 = 3, 5; row 2 = 8, 2) p = .088 for the Algic/PIE comparison, and (row 1 = 3, 5; row 2 = 10, 2) p = .052 for the intra-Algic one. So, setting up an extra suffix for Proto-Algic forces us to retain the null hypothesis, using the .05 level of significance. However, Pierce's extension, which allows us to combine the probabilities of the two comparisons, gives p = .039 - so ultimately we can reject it.

Let us now return to the question of 'fishing'. The essence of fishing is to keep testing similar alternate possibilities until, thanks to the multiplication of the individual p values this entails, one gets a significant result by chance. In the present case - ignoring the naive original hypothesis used for illustration only - we constructed a principled argument that the probability of retaining the null hypothesis would be greatest under one set of assumptions, and tested only that one.

Since the null hypothesis was rejected under an assumption of two proto suffixes, and we have seen that an assumption of one or of three or more proto suffixes would lead to even lower p values, the null hypothesis must be rejected for all

conceivable numbers of assumed proto suffixes other than zero. Zero, of course, is compatible with any rate, because zero means that there was nothing to be replaced in Proto-Algic.

The null hypothesis states that rates of lexical replacement are the same (over long periods) for similar items in all languges, unless affected by culture change or paradigmatic replacement. As linguists, we ultimately believe this to be true, and thus do not want to reject the null hypothesis for all cases. Hence, we must accept the alternative, zero proto suffixes for the third person singular in Algic.

The second problem with our naive initial analysis is far more serious: We were working with only the more productive suffixes, the ones easy to spot in a quick reference to the literature. When we searched the Algic literature for the person suffixes of minor paradigms (mostly in Wiyot) and irregular verbs (in Yurok and Blackfoot), we found enough cognate third person suffixes to completely undo our tentative conclusions. Indeed, we are now surprised at how many there are.

However, others, working with different language families, may have more encouraging results. And when they do, they may then ask themselves 'But suppose Yurok and Blackfoot had leveled out their irregular forms before being recorded! And Wiyot its minor paradigms! Would not the initial results obtained by Buck and Proulx have falsely stood unchallenged? How can such a method be reliable?'

Of course, no method that attempts to reconstruct the speech of an oral culture that existed seven or eight thousand years ago can hope to be completely reliable. But the irregular third person ending in Blackfoot did survive in spite of just such leveling of minor paradigms in the direction of the independent indicative. Also, scrutiny of the pronominal prefix forms and attributive forms of the Yurok verb suggests that they too are in fact being restructured in the direction of the independent indicative. It seems that these more productive forms are also likely to disappear before some of the more irregular ones do.

It is of course possible that eventually all the minor and irregular endings in all these languages will be lost. But now we are talking of changes that will not spare the first and second person endings. All of them were already limited to the verbs of subordinate clauses in Proto-Algonquian - two of them to transitive direct paradigms - and these two have lost further ground in some of the daughter languages. Others are limited to non-indicative or subordinate clause paradigms in Wiyot and Yurok. By the time the figures are radically different for the third person suffixes, they will be for the first and second person ones as well.

For these reasons, we feel that the method is sound. All that is required is a careful examination of the data by

experts in a wide range of language families, and some of them will hit pay dirt.

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IX

SOCIOLINGUISTICS AND DIALECTOLOGY

FORMS OF ADDRESS IN THE SPEECH OF COLLEGE STUDENTS

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The optional form-of-address slot in an English sentence for the most part conveys social information about the participants in the conversation, e.g., age, office, or awareness of the cultural norms of politeness. Because social factors are so important to the linguistic choices of college students, it is not surprising that they use this optional form-of-address slot frequently and imaginatively.

The examples in this paper come from my eighteen-year collection of undergraduate slang from the University of North Carolina at Chapel Hill as well as from an interview with three members of the university football team.

I have noticed no noun that occurs only in the addressing function, though some appear to be used mainly that way: fartblossom, "Say, fartblossom, what's up?"; Fred, used among close male friends, "Need some groceries, Fred?"; girlies, "Girlies, let's go to Taco Hell."; idgit, usually in apposition to you, "You idgit, you locked the keys in the car again."; miss thing, said to a female or gay male, "Miss Thing! Wear those black boots--just stop asking me how they look!"; sister girl, "Sister girl, if you don't fix your attitude, you're going to fall over it."

The most frequent nouns of address--and most neutral with respect to connotations--are man and dude. They are often used as attention-getters. Man can be used for both males and females and is often more an expletive than a noun of address, as in "Man, you should see the line at the cashier's office." Dude as a singular noun of address is usually directed to a male, though in the plural it can address or refer to a mixed group of males and females. (Only one student has reported that singular dude can apply also to a female.) Dude has inspired at least two derivatives, the feminine dudette and the suffix-like -dude, as in "I knew he looked familiar--he's the library-dude," i.e., 'the person who works at the circulation desk at the library'. My collection has no instances of suffixal -dude used as a noun of address.

Some nouns of address are, loosely speaking, kinship terms: bro and broth from brother, blood from blood brother, cuz from cousin, sister girl, and Beav and Wally from the little brother/big brother relationship on the television series Leave It To Beaver. Homeboy, homegirl, home, homebiscuit, homechop, homeslice, and sherlock are all developments of the notion of kinship between people from the same hometown, even though the

terms have generalized in meaning to include people one is close to in ways other than by having grown up with them. It is interesting to note how many of these kinship terms entered college usage from the dialects of African-Americans.

Other nouns of address generalize proper names. Fred, used among close male friends, perhaps derives from Fraternity Freddie. From television characters come Beav and Wally to address males playing a little brother or big brother role, and Bruce directed to a male unsuccessfully trying to be cool derives from the actor Bruce Willis who plays David Addison on the television series Moonlighting. The suffixes -ski and -wad can be added to any proper name for a censuring effect: "Say, Mikewad, you left the door open and the cat got out." Or "Toddski, get a life. Fall break is next week, not this week." Almost any evaluative term from the slang repertory can be converted to an address form suitable to a particular situation by using it in conjunction with nouns like boss, captain, master, and meister, which indicate a degree of proficiency or leadership. For example, "Slack Meister, how did you manage to pull a C in English 36?" Or "Captain Cool, what did you do with my shades that you borrowed?" Or "Throw Master, you got me that time." (Throwed means 'mistreated, defeated, taken advantage of'.)

Almost any derogatory noun can be used as a noun of address--asshole, bitch, butthead, hosebag, roadwhore, skank, sleezebag, slimebucket, slut, and whore, to list a few that are current. Such nouns used in direct address are insulting and possibly slanderous without the prior assurance that their ordinary meaning does not apply. As with many slang items, e.g., bad, killer, and wicked meaning 'good', ironic interpretation is expected. As a matter of fact, the straightforward use of such nouns in an addressing function is belligerent and unacceptable public language even among do-your-own-thing students in a university setting where freedom of speech is sacred. In college student usage as nouns of address, potentially offensive expressions are used by people on friendly terms with each other and are much more likely to be endearing than hostile in intent. Students tell me, for example, that hello, bitch is not an unusual greeting between female friends in dormitories--and that they address each other as slut and whore too. A less publicly offensive example is provided by study-geek, usually a derogatory term for 'someone who studies to the extent that he or she becomes anti-social'. One Sunday around noon, I saw two females walking in the direction of the library carrying books. They met another female, whom they obviously knew, who addressed them, grinning, as study-geeks.

As with their slang, words and expressions used by college students for purposes of address are often sexually laden, e.g., dickhead, dike bitch from hell, hoser, and slut puppy. In my collection, terms with female and gay referents are more numerous than terms that refer to males. The frequent and unflinching use of such an array of old and new taboo words

with each other conjures up an image of an active and exciting life of sexual adventure by which the users fantasize for themselves a daring and less than reputable alter ego. Yet the use of these daring addresses has its restrictions. For the most part, college students use them only among their peers and only directed to a member of the same sex. For instance, a male can safely use expressions like hose bag and slut puppy to address a female only if he is certain that she will interpret them ironically; to have that certainty, a friendly relationship must already be established. For example, college students who knew each other in high school and run into each other from time to time on campus can rely on and recall their earlier association by the playful use of such nouns of address.

Not all forms-of-address in the speech of college students signal affection in the rather raw and roundabout way illustrated by most of the examples cited so far. College students of both sexes still use baby and honey and sweetie and pooh bear and invent new diminutives like mongolito (perhaps from 'I love you humongously').

Nouns of address, again like slang, serve social functions. A noun of address makes explicit the I/you relationship implicit in face-to-face conversation. The use of the optional form-of-address slot makes the claim that the speaker is not engaging in communication with a stranger; the speaker knows in some way the person being addressed. Even the use of an honorific like sir or m'am indicates some knowledge of the addressee--even if the form of address merely acknowledges the relative position of the participants in age or on the social scale. Using more elaborate forms-of-address is like knowing and being privileged to use a nickname. It indicates a personal relationship among the speakers rather than merely a public one.

In fact, nicknames are common fillers of the optional form-of-address slot in the less formal registers of conversation where shared personal knowledge among the participants increases. Invented nicknames (as distinguished from traditional ones like Hank for Henry) tend to serve small networks of acquaintances, sometimes just two people. Among college students, who are finding their way in various groups created by academic and campus structures, language which signals connectedness or separation is important. Nicknames, which betoken shared experience and knowledge, are used and enjoyed in complicated social patterns. An invented nickname--like many names used in family circles--is often triggered by a particular incident or characteristics known only by intimates. Almost every nickname has a story behind it, and shared stories have been the way that human beings have reached out and touched someone for millenia before the long-distance telephone. One student reports that she calls her fiance hogroot from a nickname bestowed on him at work. Another gives a list of six nicknames for her boyfriend John, including amor based on a personal joke and Juande based on a hispanicized version of his

name. Lima and Jelly, which two male roommates call each other, allude to the lima-bean shaped ears of one and the jelly-bean shaped head of the other. Some students, particularly females, use code names in unfamiliar social settings where they are strangers; for example, a co-ed named Sarah might use the code name Tina. A code name is like a nickname intended for separation rather than connectedness.

To explore nicknaming as a linguistic device to create and maintain social solidarity, I interviewed three members of a well-defined subgroup of students, the UNC football team. My consultants were Mark Atkinson, junior tailback; Thomas Thigpen, sophomore linebacker; and Antuarn "A-Train" Williams, sophomore tailback.

As might be expected, nicknaming is widespread, particularly within a position squad whose members spend a good deal of time together. Several team members brought their nicknames to Carolina with them, e.g., Jonathan "Choo" Perry, Julius "Juice" Reese, and Antuarn "A-Train" Williams, whose name was bestowed by his high school coach in allusion to Duke Ellington's famous composition. The affable A-Train has inspired several additional nicknames: Train, Fresh 'n Lovely, and Little A. Little A was acquired in contrast with Big A, Austin Robbins, a 6'6", 276 lb. defensive tackle, who is sometimes called just plain A with prolonged pronunciation. Acronyms and shortenings are common--BT for Bernard Timmons, CC for Clarence Carter, EB for Eric Blount, and Thiggy for Thomas Thigpen. The sounds of names play a part: linebacker Mark Hopkins is called Hop Man, and Cliff Baskerville, a 5'11", 164 lb. defensive back who has a hard time bulking up, is called Siff. Several team members have acquired their names by allusion to popular music. Derrick Henderson and Chuckie Burnette have acquired the surname Flave because of their devotion to the rap group Public Enemy #1. Randall Felton, who sometimes shows his anxieties, is called Easy E in ironic reference to the name of a rapper. Perhaps the most imaginative nickname was one I overheard on campus during spring training 1989. A brawny white male student sitting on the steps of the cafeteria with two equally brawny black male students called out to a black male about twenty-five yards away, "Yo, Chocolate Thunder!" That was possibly a fleeting nickname, as I have not been able to identify its owner yet.

The generic forms-of-address that Carolina football players use with each other picture pleasant relations: baby, brothers, fellas, homies. Cursing and deliberate, mean-spirited use of addresses like asshole are not acceptable. Like other students--spontaneously to fit a particular situation and in jest--they convert nouns with sexual referents to address forms, though courtesy towards me prevented their elaborating on such innovations.

Their virtuosity with forms-of-address including nicknames is confined to their peers. They address their coaches as Coach and have developed very few disparaging

nicknames by which they refer among themselves to members of the coaching staff. An innocuous exception is Coach Eat 'm Up for defensive coordinator Carl Torbush, who can out-eat even the largest players on the team.

In summary, the creation and use of forms-of-address by college students is, like slang, a way of using language to establish and maintain various types of social relationships.

Linguistic Manifestation of the Japanese Sociological Concept, uchi 'insiders' and soto 'outsiders' *

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0. Introduction.

In "Dichotomy in the Structures of Honorifics in Japanese" (1988), Tokunaga discussed the use of the passive suffix -rare for the respectful form and of the causative suffix -sase for the humble form. In the article, I suggested a pragmatic implication which is revealed in this structural dichotomy of the Japanese honorifics: the Japanese sociological concept of the distinction between uchi 'insiders' and soto, 'outsiders' manifests itself in the linguistic codings in Japanese. Uchi refers to those who are considered the speaker's in-group members such as his family members or close friends. Soto refers to those who are considered the speaker's out-group members. In the current paper, I intend to investigate further the relationship between the sociological concept and the linguistic system of Japanese.

In the area of Japanese lingustics, the notion of "subjectivity" has been discussed by linguists under different terminologies such as "epistemology" by Kuroda (1973), "empathy" by Kuno (1976, 78, 87 & elsewhere) and Kuno & Kaburaki (1975 & 77), and "subjectivity" by Akatsuka (1985, 86). These terminologies deal with the identification of the speaker in language as the universal fact of mind. My discussion in this paper focuses on the linguistic dichotomy observed in Japanese and its relationship with the social concept of uchi 'insiders' and soto 'outsiders' rather than the identification of the speaker.

It is well-known that the appropriate choice between the giving verbs and the usage of honorifics can only be made by understanding the speaker's physical or/and psychological relationship with the participants in the conversation. This paper does not aim at discussing the usage of these linguistic aspects. It suggests the possible linking between the language and the cultural concept: the linguistic dichotomy can be derived from the conceptual dichotomy in the Japanese society or vice versa.

In this paper, I will discuss the linguistic dichotomies observed in:
(1) the formation of the honorific structures, (2) the appropriate choice between the giving verbs ageru and kureru, and (3) a syntactic

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constraint on the position of the first person/insider NP with one class of verbs called the Subject-Oriented verbs (Tokunaga 1986).

I will demonstrate how these linguistic dichotomies are inter-related with the social concept of uchi 'insiders' and soto 'outsiders.' The research shows that the concept of the distinction between uchi 'insiders' and soto 'outsiders' manifests itself in the linguistic devices such as morphology and lexical items, in Japanese. Further, the linguistic devices are semantically categorized in the notion of control as discussed in Section 1.

1. The Honorific Structures.

The inter-relation between the social concept and the linguistic dichotomy in Japanese is most clearly observed in the honorific structures. In Japanese there is a dichotomy in the structures of honorifics. The dichotomy is observed between the verbs and the suffixes used for forms of respect and for forms of humility. A form for respect contains either the inchoative verb naru 'become' or the passive suffix -rare as in (1), while a form for humility contains either the active verb suru 'do' or the causative suffix -sase as in (2)[1].

(1) "Prof. Tanaka made the salad."
a. Tanaka-sensei ga sono salada o o-tsukuri ni nat-ta
-teacher Nom. that salad Acc. Hon-make pst
n desu.
comp. cpla
b. Tanaka-sensei ga sono salada o tsukur-are-ta n desu.

(2) "I made the salada (for someone superior)."
a. (Watashi ga) sono salada o o-tsukuri-shi-ta n desu.
b. (Watashi ga) sono salada o tsukur-ase-te itadai-ta n desu.

The respectful form refers to an action of the speaker's superior or a stranger, namely, an "outsider." The humble form refers to an action of the speaker himself or his in-group member. Both suru 'do' and the causatives explicitly indicate an agent who does the action or makes someone else do the action, while naru 'become' and the passives hide such explicit indication of the agent. In this respect, forming the respectful form in Japanese also follows one of the universal strategies of politeness discussed by Brown and Levinson (1978, 87). They claim that treating "the respect for face as norms or values subscribed to by members of a society" (p.67, 1978) is a basic human desire. They maintain that such strategies are required to minimize the creation of possible face-threatening situations. One

such strategy is the use of impersonal constructions, that is, use of the passives or the inchoative verb naru 'become.' According to Brown & Levinson, these impersonal constructions could lead to the assumption that the speaker does not want to impose on the hearer for being polite.

Following Brown and Levinson's theory, the use of naru 'become' and -rare in the form of respect in Japanese honorifics seems not to be unusual. It seems to be rather a logical choice. The interesting aspect of the Japanese honorifics is that it indicates the clear dichotomy between the respectful and the humble forms, that is, between the forms for the outsiders and for the insiders. In other words, in the formation of the honorific structures the passive suffix -rare and the inchoative verb naru 'become' are used to express actions of the outsiders and the causative suffix -sase and the active verb suru 'do' are used to express actions of the speaker himself or the insiders.

The dichotomy between naru 'become' and suru 'do' and between the passive suffix -rare and the causative suffix -sase is clearly observed to be derived from the notion of "control." Comrie (1981) discusses the totality of semantic roles, such as agent, force, instrument, experiencer, and patient in a universal inventory. He claims that these semantic roles are not a set of discrete semantic relations, but rather a continuum along which the labels represent different points. He characterizes the continuum as a continuum of control. There is a degree of control such as full control, potential control, and no control, as exemplified in (3).

(3)a. Full control: I broke the vase on purpose.
b. Potential control not exercised: I carelessly broke the vase.
c. No control: I was pushed down to the concrete and broke the vase.

In the notion of control, the passives and the inchoative verb naru 'become' indicate that there is no control in the part of the subject NP, whether it is a human NP or a non-human NP. On the other hand, the causatives and the active verb suru 'do' indicate that there is control in the part of the subject, i.e. agent. The causative suffix indicates only semantic function of causative, which always denotes the agent's force or control, while the suffix -rare shares four grammatical functions such as 'spontaneity,' 'potential,' 'formation of respectful form,' and 'passive.' All the four functions are semantically "out of an agent's contol."

The question arises as to why the respectful form is expressed by means of the linguistic items which semantically indicate "no control" and the humble form by the items which indicate "control." The answer lies in the Japanese perception of himself and a respectable entity.

An anthropologist and ethnolinguist, Araki (1980) and a linguist, Ikegami (1981) have independently claimed that the passive suffix -rare and the inchoative verb naru 'become' indicate that an incident happens by itself from an unknown source. Both scholars also claim that this indication is the conceptual attitude that Japanese possess for a respectable existence, whether the respectable existence is human or non-human. They argue that the use of these semantically impersonal items for the respectful form reflects the Japanese value of a natural occurrence rather than human force. Sentence (4) is a classical expression for the situation when the Lord is appearing in front of people.

(4) Otono-sama no o-nari. (Ikegami's (138), p.252)
Lord-Hon Gen. Hon (Araki, p.39)
"Lord has arrived (appeared)."

Ikegami explains that naru in (4) indicates that the Lord was non-existent and now has appeared by a superhuman power. In other words, a matter described with naru is perceived as what is beyond one's control.

Hashimoto (1969), Makino (1978) and Araki argue that the suffix -rare is derived from the notion of jihatsu, "spontaneity," which refers to facts that occur beyond human control. It seems that the philosophical concept for the notion of respect seems to be directed toward a superhuman power, something which is beyond one's control. Under this Japanese concept of respect, the use of the linguistic items which indicate "non-control" makes logical sense. The structural dichotomy in the honorific structures probably indicates the conceptual attitude that Japanese possess for the speaker himself and some respectable person: the linguistic indication of the agent with suru 'do' or -sase for the humble form seems to indicate that the Japanese perceives something controllable as what belongs to himself, and the use of the linguistic items with no indication of the agent for the form of respect may indicate that respect must be expressed with feelings of awesome as if it belongs to something supernatural. Furthermore, this distinctive conceptual attitude for things controllable and non-controllable may be derived from the concept of the distinction between uchi 'insiders' and soto 'outsiders', or vice

versa. See Chart 1 below, it shows the clear distinction in use of the linguistic devices for referring to the outsiders and insiders under notion of control.

Chart 1.

Social concept	Notion of control	Linguistic devices	
Outsiders	- control	-rareru	naru 'become'
Insiders	+ control	-saseru	suru 'do'

In the following sections, I will demonstrate that the Japanese verbs lexico-semantically possess properties which restrict a choice of a verb and the syntactic position of an speaker/insider NP according to the concept of uchi and soto. In Section 2 it is to be discussed that an appropriate choice between the two Japanese giving verbs can be made only by understanding the social concept of uchi 'insiders' and soto 'outsiders.'

2. The Giving Verbs, Ageru and Kureru.

There have been extensive analyses on the Japanese giving verbs. The most basic analysis is that, as Kuno claims elsewhere, these verbs have something to do with the speaker's identification of himself. Sentences in (5-6) are the typical examples which indicate the difference between these verbs:

(5) Ageru

a. Jim wa Nancy ni hon o age-ta.
Top. Dat. book Acc. give-pst.
"Jim gave a book to Nancy."

b. Watashi wa Jim ni hon o age-ta. "I gave a book to Jim."

c. *Jim wa watashi ni hon o age-ta. "Jim gave me a book."

(6) Kureru

a. Jim wa Nancy ni hon o kure-ta. "Jim gave a book to Nancy."
(Nancy is the Sp's insider)

b. *Watashi wa Jim ni hon o kure-ta. "I gave a book to Jim."

c. Jim wa watashi ni hon o kure-ta. "Jim gave me a book."

As seen in (a) in (5) and (6), both age-ru and kure-ru can produce acceptable sentences for the context. Ageru in (5a) indicates that Nancy is equal to Jim in relation to the speaker in terms of his feeling of closeness. On the other hand, use of kureru in (6a) indicates that the speaker considers Nancy his insider, that is, Nancy may be his sister or she is a closer friend than Jim. The acceptability of the choice

of these giving verbs totally depends on understanding of the relationship between the speaker and the giver or the receiver, whether the giver or the receiver is an insider or an outsider for the speaker even in terms of his emotional closeness or of his subconscious feelings. Thus, when both the giver and the receiver are third persons, use of either of the giving verbs may be acceptable depending on the speaker's relationship with the giver and the receiver as in (7).

(7) Jim wa Nancy ni hon o {(a) age-ta. / (b) kure-ta.}
"Jim gave a book to Nancy."

The speaker describes the event with ageru in (7a) as a factual information. The verb does not indicate that either Jim or Nancy is particularly close to the speaker in terms of his emotional or physical relationship. It simply indicates that the speaker describes the event taking the giver's point of view. On the other hand, kureru in (7b) indicates that the speaker considers Nancy close to himself. Nancy may be his family member, his lover or close friend. If the speaker chooses ageru when Nancy is his family member, (7a) becomes ungrammatical because Nancy is clearly the speaker's insider and Jim is not. Choice of ageru would make the hearer perceive the speaker's relation with both the giver and the receiver almost equal in the speaker's mind in terms of his personal relationship with them.

The choice between the Japanese giving verbs is totally dependent on understanding on the speaker's relation with the giver and the receiver, whether it is emotional or physical. When the receiver is himself or his insider, he has no choice but must choose kureru. This indicates that the social concept of the distinction between uchi 'insiders' and soto 'outsiders' governs the grammticality of the usage of the giving verbs in Japanese.

In the following section, I will demonstrate that the directionality of the Japanese directional verbs is also lexico-semantically governed by the concept of uchi 'insiders' and soto 'outsiders.'

3. The Japanese Directional Verbs.

In Tokunaga (1986), I classified the Japanese directional and motion verbs into two categories in terms of the directionality: the subject-oriented verbs and the speaker-oriented verbs. The subject-oriented verbs such as uru 'sell' and kaw 'buy' are those whose directionality is oriented with respect to the subject regardless of Person in speech act. The speaker-oriented verbs are those whose directionality is oriented with respect to Person regardless of its grammatical role. The social concept of uchi and soto manifests itself independently in each class of verbs in different manners.
First, I will discuss the Subject-Oriented verbs (SuVs). Sentences in (8) exemplify the manifestation of the concept in the use of the SuVs.

(8) The Subject-Oriented Verbs (SuV).

a. Jim / Watashi } wa Nancy ni kitte o ut-ta.
Top Dat stamp Acc. sell-pst.
"Jim / I } sold the stamps to Nancy."

b. Nancy / Watashi } wa Jim kara kitte o kat-ta.
Abl. buy
"Nancy / I } bought the stamps from Jim."

???Jim wa {(c) watashi / (d) imooto} ni kitte o ut-ta.
my sister.
"Jim sold the stamps to {(c) me." / (d) my sister."}

???Nancy wa {(e) watashi / (f) imooto} kara kitte o kat-ta.
"Nancy bought the stamps from {(e) me." / (f) my sister."}

As observed in (8), the Subject-Oriented verbs indicate two directions of the physical or metaphorical movement of Trajector[2]: One is the direction of the movement of Trajector, kitte 'stamps' in (8a), is from the speaker/insider, and the other is the direction of the movement of Trajector is to the speaker/insider as in (8b). Note that, in both directions, the speaker/insider NP is in the subject position as in (8a & b). When the speaker/insider NP occurs in the oblique position as in (8c, d, e & f), the sentences become pragmatically unacceptable. In other words, the Subject-Oriented verbs allow the first person/insider NP only in the subject position. On the other hand, an non-

speaker/outsider NP does not receive such syntactic retriction. In other words, an outsider NP, as Nancy in (8a) and Jim in (8b), can occur in the oblique position.

As we have observed in (8), the concept of differentiating the speaker/insider from non-speaker/outsider governs syntactic position of NPs in Japanese: the first person/insider NP cannot be placed in an oblique position with the Subject-Oriented verbs. Violation to this restriction as seen in (8c, d, e & f) would result in producing pragmatically unacceptable or heavily questionable sentences. If one chooses to violate this restriction, he purposely aims at conveying negative implications. In case of (8c & d), they imply that the speaker is trying to express something negative about Jim's having sold the stamps to the speaker himself or to his younger sister: the stamps may have been fake, Jim sold them to the speaker or his sister by force, and so forth.

Now I will turn to one of the Speaker-Oriented verb kureru 'give.' As I have discussed in the choice between ageru and kureru, with kureru the speaker indicates that the receiver is either himself or his insider such as his family member or his psychologically close friend (see 6a & c). In other words, the speaker can never be the giver of this verb (see 6b). This means that the insider NP must be in the oblique position with kureru. That is, the speaker/insider NP can never be the subject of the verb and an outsider NP can never be the oblique NP as seen in (6b). Notice that the social concept of uchi 'insiders' and soto 'outsiders' is the crucial factor for determining the syntactic positions of the NPs, subcatetorized by both the Subject-Oriented verbs (SuV) and the Speaker-Oriented verb (SpV) kureru. Furthermore, an interesting contrast is observed: the speaker/insider NP must occur in the subject with an SuV and in the oblique with the SpV kureru.

The analyses on the Subject-Oriented verbs and the SpV kureru again demonstrate how rigidly the Japanese syntax and semantics are inter-related with the sociological concept of the distinction between the speaker/insiders and non-speaker/outsiders.

4. Summary.

I have briefly demonstrated that there is a linking in Japanese between the social concept of uchi 'insiders' and soto 'outsiders' and the syntax and semantics of the language: the structural formation of honorifics, the appropriate choice between the two giving verbs, and the syntactic constraint on the speaker/insider NP with a subject-oriented verb, and these can be all explained by the assumption that the social concept of the distinction between uchi 'insiders' and soto

'outsiders' may be governing the grammar of the Japanese language as exemplified in this paper.

NOTES

Abbreviations

Nom. = nominative	Acc. = accusative	Hon. = honorific
comp. = complimentizer	cpla. = copula	Gen. = genitive
Sp. = speaker	pst = past	Abl. = ablative
Top. = topic	Dat. = dative	

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1. There are many more ways to express honorifics in Japanese, such as use of lexical devices, e.g. iu -- ossharu 'say.' However, I shall limit my discussion to the structural dichotomies and their relationship with the sociological concept of uchi 'insiders' and soto 'outsiders.'

2. Trajector is a term used in Space Grammar (Langacker, 1980). It indicates an element which either metaphorically or physically moves in a sentence. For example, in Jim gave a book to Mary, book is Trajector which moves physically from Jim to Mary.

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Presentation of the Analysis of Linguistic Atlas Data: Another View

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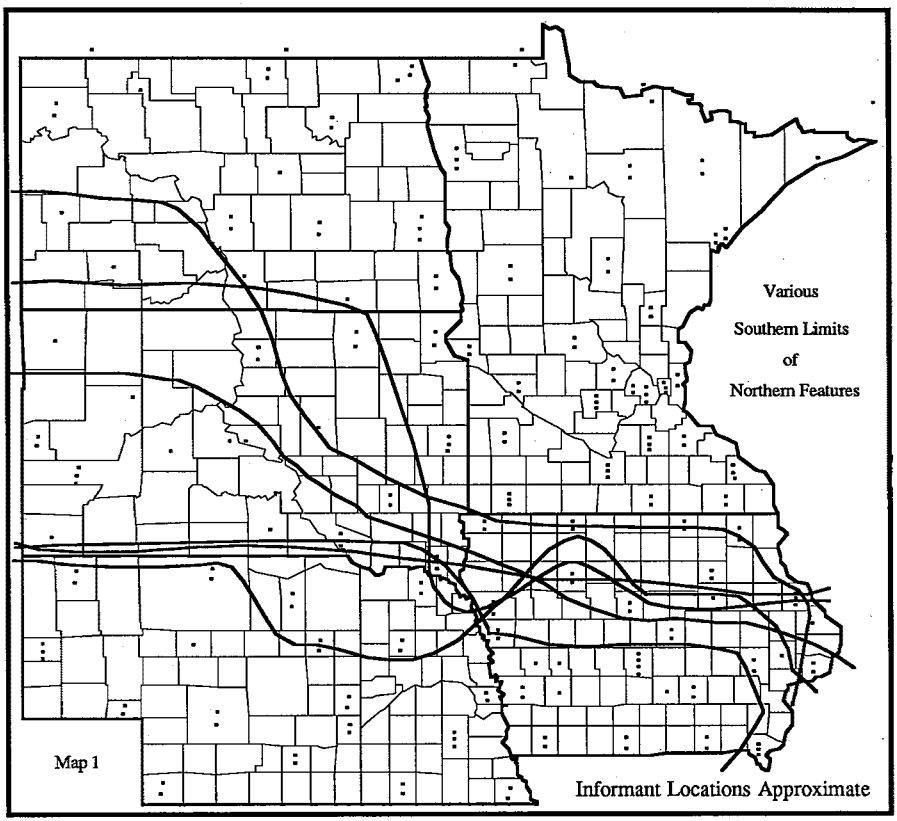
The study of the dialects of American English has included the compiling of Linguistic Atlases for various dialect areas. One such atlas, The Linguistic Atlas of the Upper Midwest In Three Volumes [(1973-1976) Allen, Harold Byron] (LAUM), is an excellent work that paints an historical picture of speech patterns in the Upper Midwest at mid-century. Allen uses the traditional method of drawing isoglosses on maps of the area to present his analysis of the LAUM data. While isogloss maps are useful tools, they shouldn't be the only method of presentation available. Linguistic data needs to be presented in such a way as to reflect the situation in the field, and isogloss maps do not always accomplish this end. There need to be alternative methods of presenting linguistic data.

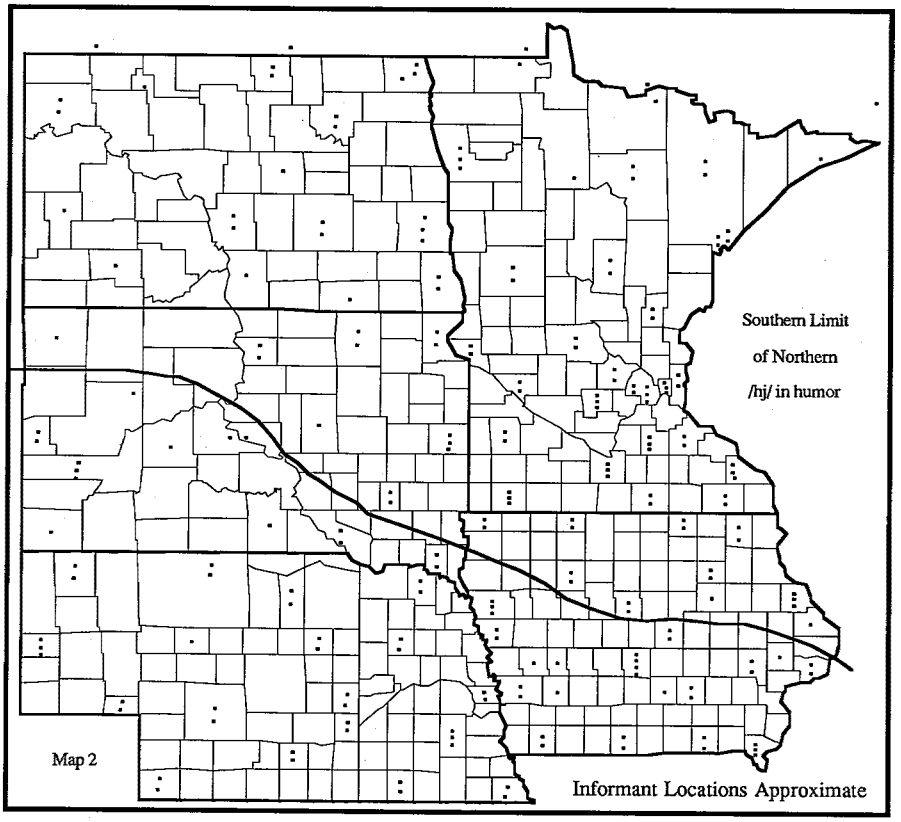
LAUM is divided into several parts. The first part of the atlas contains a history of the project; a detailed analysis of the area, its inhabitants, and the informants; and the analysis of the speech patterns of the area, based on the data contained in the other parts of the atlas. The informants are chosen on the basis of their being lifelong residents of the Upper Midwest. The availability of informants determines where, and how many informants are contained in any given part of the area. Each informant is assigned a number, which is placed on a map showing the approximate locations of all the informants. The material itself is divided into three parts, the lexicon (Volume 1), the grammatical features (Volume 2), and the phonetic/phonological features (Volume 3). Within each part, there is a detailed analysis of the feature being discussed, followed by a list of numbers representing those informants responding with that feature.

An isogloss is used to show, graphically, the boundary between two linguistic features, dialects, or languages. The isogloss is only an approximation because there is usually not a sharp division of the two items being compared, but rather an area of overlap. If the area of overlap is small, or the map area is sufficiently large, then the isogloss map is a fair approximation of the situation. An isogloss map can also be good for giving a general overview of the speech patterns of a given area. There are, however, limitations on what an isogloss map can present for more detailed study. If the speech of an area is relatively uniform, then drawing isoglosses may prove to be difficult and not very useful. Also, some of the most interesting information is found in areas of overlap where an isogloss map may provide a distorted account of the data. The Upper Midwest is such an area. The following map [Map 1] shows the area of overlap of the Southern limits of various Northern features as proposed by Allen.

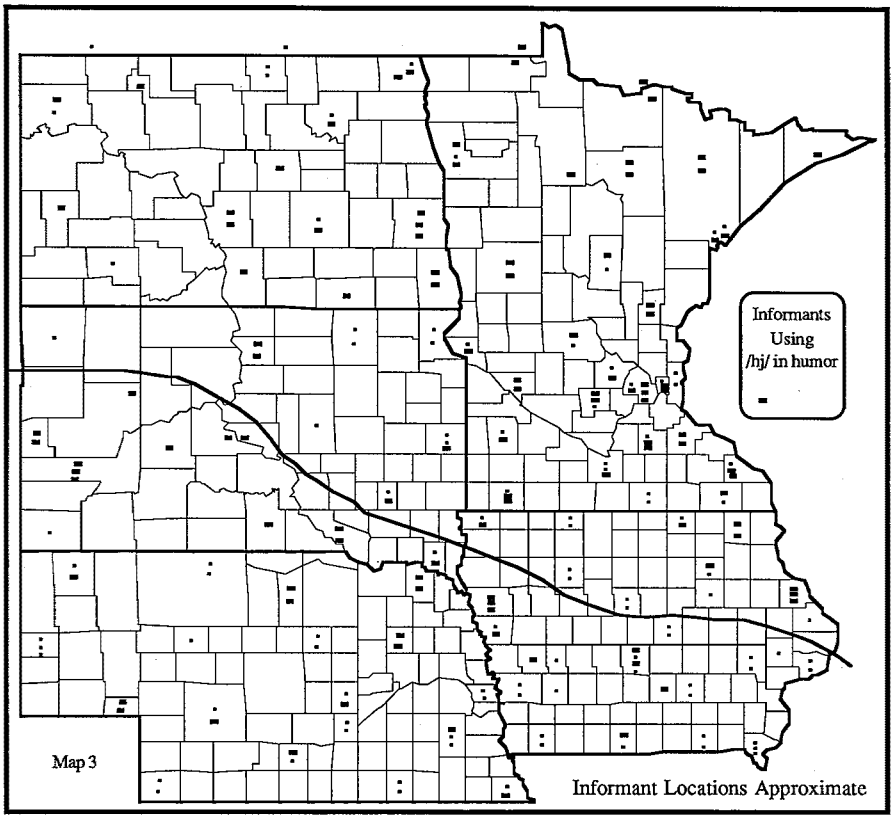


With such a large area of overlap, it would be very difficult to draw a single isogloss to represent the limit of the Northern dialect.

One particular Northern feature that Allen discusses is the aspiration, /hj/, of the beginning of the word 'humor'. Allen draws his isogloss for the feature much like the one on Map 2.

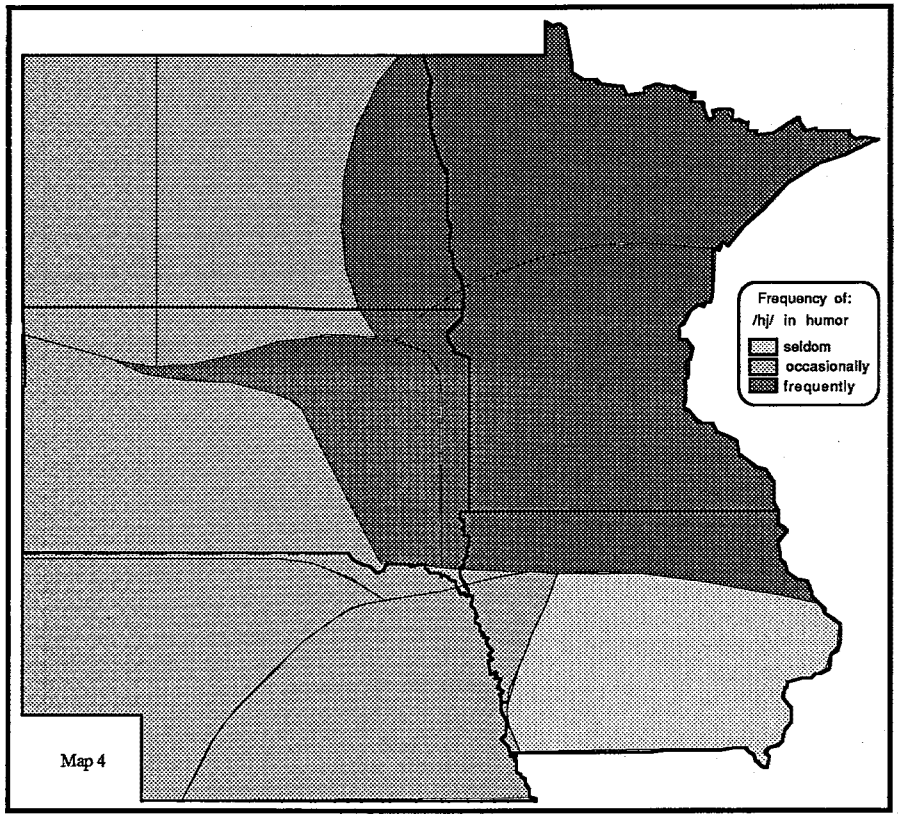


When the locations of the informants who have the /hj/ in 'humor' are plotted on the same map as the isogloss, the difficulty of drawing isoglosses becomes apparent.



It can be seen that the isogloss doesn't correspond very well with the data. Unfortunately, more than half of all the isoglosses that Allen proposes in the "language variations" section of LAUM have similar difficulties. The preceding example does not mean to imply that the data are inaccurate, just that it doesn't support the analysis.

One solution to the problem of presenting linguistic atlas data could be to base the analysis on the settlement patterns of the area. Allen divides the Upper Midwest into nine "Speech expansion areas" which "correspond roughly to phases in the westward population movement" (Allen 1973-76:124). If these "Speech expansion areas" are drawn on a map which is then shaded in relation to the frequency of use of a particular feature, a more insightful analysis may be possible. "The degrees of frequency, which are interpreted impressionistically here rather than with statistical precision,"(Allen 1973-76:126) are used to help define the speech patterns of the Upper Midwest. The following map [Map 4] is based on Allen's "Speech expansion areas", and is shaded according to his "degrees of frequency" for the aspiration, /hj/, in humor from "Pattern A1" (page 126).



Map 4

With such a map it is easier to see how a feature spreads (or declines) with the movement of population. One drawback to a kind of map like Map 4 is that only one feature can be shown at a time. If a linguistic atlas is created as to contain data alone, separate papers can be written to show the analysis of the data, and maps like Map 4 would be valuable tools therein. Another difficulty lies in the assignment of frequencies for a given feature. For LAUM, Allen has already done the analysis and assigned frequencies for many features, so the difficulty is not great.

The arrangement of LAUM data on the basis of settlement patterns, while not perfect, can provide a more insightful analysis of the information so carefully gathered by Allen and his fieldworkers. A linguistic atlas is a document to be used by students in order to obtain an understanding of regional dialect features and their distribution. It is hoped that by properly analyzing LAUM, students will find ways to accurately describe how languages and their dialects change. We owe a great debt of gratitude to all who worked on providing us with such an important academic tool.

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X

LANGUAGE WRITING

THE LINGUISTIC GENRE OF ABSTRACTS

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INTRODUCTION

At first, any attempt to provide a meaningful language-based definition of abstracts would seem unlikely to succeed. Dictionary definitions of the abstract, summary, epitome, precis, compendium, abridgment, synopsis, digest, apercus, sketch, outline survey and conspectus are overlapping and somewhat confusing; and it is hard to find two people who define these terms same way. For the task to succeed, we must as a minimum distinguish one type of "abstract" from another, and this would appear to be a formidable if not impossible undertaking.

Fortunately, however, the tradition in document in document analysis is to use the terms "abstract" and "summary" almost exclusively, allowing us to concentrate on these to the exclusion of the other terms of similar meaning. Although the term "summary" has several meanings, that will not be a matter of major concern in our attempt to distinguish between the abstract and the summary. Two types of synopsis are usually recognized:

(a) the "descriptive abstract" (or simply "abstract"), which is a sort of table of contents in prose form; and
(b) the "informative abstract" (or "summary"), which acts as a report in miniature.

The purposes of this analysis are to provide linguistic criteria for this distinction, and to examine the major structural patterns of synopses which contain these two and perhaps other genres. For this paper, I use the terms "abstract" and "summary" for the prose contents and report-in-brief functions respectively.

Strangely, few authors seek to use language form or style as a criterion for distinguishing the two. An exception is Eisenberg (1982), who uses style as the basis for definition of the abstract:

> "The author says a comparison is presented, rather than giving the actual comparison, that conclusions are made rather than giving conclusions. Thus a listing of the types of information is given rather than the information itself."

Rathbone (1966) also makes a serious effort to recognize an important distinction in terms of the language used.

> "An informative abstract follows the style and language of the original; an indicative abstract uses passive verbs such as are described, are given, and are discussed."

We will here expand on these observations by determining more specifically the linguistic criteria of abstracts and by distinguishing between abstracts and summaries solely on the basis of language use and style.

THE NARROW GENRE OF TECHNICAL ABSTRACTS

Description as Background

The contention here is that journal abstracts (as defined earlier) form a special narrow genre within the wider genre of description. Description is defined as texts that only provide information about a topic, thing or process (not a thesis or idea), and therefore do not contain clause-relating connectives such as those of logic. Description has many linguistic devices for achieving the thread of continuity in the text (Jordan 1984a). These include several forms of basic continuity, associated and perspective systems, and various techniques of connection between clauses (relative, -ed, -ing, verbless, etc.).

Most of the connecting devices of the wider genre of description are also found in technical abstracts, but two in particular are most prevalent: repetition of the paper as subject of a small number of verbs such as show, present, and give in the active voice; and untriggered perspectives as present passives (e.g. are compared). These two major systems are explained here together with the environments which favor them most. Several variations of these systems and some minor connecting devices for this genre are also discussed, leading to criteria for distinguishing between "abstract" clauses and "summary" clauses. Some discourse patterns including combinations of abstract

and summary clauses are then recognized.

Active Forms

The two major clause patterns of abstracts can be seen from the following example of an abstract sentence, first in English and then in French:

(1)

In the following, the installation of a precision approach radar position control system at the Ottawa International Airport for the Department of National Defence is described....

Cet article décrit l'installation d'un système de haute précision pour le contrôle par radar de l'approche des avions, à l'aéroport internationale d'Ottawa, par le Ministère de la Défense Nationale... (Engineering Digest, Nov. 84, p. 34).

The English version uses the present passive is described in conjunction with the introductory In the following (article). In contrast the French version places the article as subject of the active form of the verb (Cet article décrit). It is partly the longer length of the French version that makes the active more suitable in French, as (in both languages) we try to avoid a very long subject with a single final verb.

Sentence length, however, is not an overriding factor as there are other ways of avoiding a final verb after a long subject (see later). But there is a strong tendency for writers to use the active form at the start of the abstract, and to use passive forms later:

(2)

This paper presents the main features and results of the numerical and experimental studies that were carried out by ENEA in co-operation with ANSALDO and ISMES for the seismic verification of the Italian PEC fast reactor test facility. More precisely, the paper focuses on the wide-ranging research and development programme that has been performed (and recently completed) on the reactor building, the reactor block, the main vessel, the core arid the shutdown system. The needs of these detailed studies are stressed and the feed-backs on the design, necessary to satisfy the seismic safety requirements, are recalled. The general validity of the analyses in the framework of the research and development activities for nuclear reactors is also pointed out (Nuclear Engineering and Design, 106, 1988, p. 102).

A limitation of the active form is the sort of verb that collocates with the paper, article or other document. Clearly a document can show, or present, or illustrate, or summarize, or describe; but can it also examine, or derive, or compare? For many writers of abstracts, it appears that the authors of papers can do things that the inanimate paper cannot do. Thus the passive may be more suitable for such verbs, as we can say that something is examined, or derived, or compared (in this paper by these authors) instead of saying that the paper does these things. The passive has the advantage that the paper becomes the locative rather than the agent--something is "studied" in the paper rather than by the paper providing a wider range of possible verbs:

(3)

> Subject to many simplifying assumptions, the motion of a square particle in a two-dimensional channel flow is studied in order to estimate... (Numerical Heat Transfer, 13, 1988).

The active form can be used if a verb suitable for the paper as subject is used in conjunction with a noun containing the less suitable meaning. Thus we can readily write "The paper presents a study of..." although many writers would feel that "The paper studies..." is inappropriate because papers do not study. Here is a short list of examples of this technique:

Questionable	Normal Use
The paper analyzes...	The paper includes an analysis of...
The paper compares...	The paper makes a comparison of...
The paper evaluates...	The paper presents an evaluation of...
The paper explains ...	The paper offers an explanation for...

A further method of avoiding an awkward active with the paper as subject is to use the active with the author(s) as subject. While such practice is frowned upon--quite irrationally--by many textbook authors, and is rarely found in abstracts, it can prove a useful technique. In the following example, the "how-nominal" would make a final passive very awkward and, to avoid the paper demonstrating something, the authors refer to themselves:

(4)

> In this paper the authors demonstrate how the

property of positive definiteness of the mass matrix can be included in the formulation of a continuous frequency domain filter (Journal of Vibration, Acoustic, Stress, and Reliability in Design, 110, 1988, p. 49).

For a similar reason (a complex "that-nominal"), the single author of the following example chose the "royal" or "editorial" plural we:

(5)

We show that the onset of the oscillatory convection occurs at a Hopf bifurcation in the steady-state equations for free convection in the Boussinesq approximation (Transactions of the ASME, 109, 1987, p. 894).

The active form is also very useful when there is a need to refer to a specific part of the paper. Most passive forms leave reference to the paper implicit, but that cannot be done if the reference needed is, for example, in the final part of the paper, making the active the more suitable form:

(6)

The final section discusses two elements which have been given scant attention in past studies of time on task: ... (Journal of Educational Research, 73, 1980, p. 183).

Finally the need to use an intransitive verb (usually the verb to be) leaves us with the passive counterpart, and we must use the active form. Such structures are more usual in book reviews and are quite rare in technical abstracts, but they do occur:

(7)

This paper is concerned with the application of the Boundary Integral Equation (BIR) method to acoustic radiation and scattering in a three-dimensional half space (Transactions of the ASME, 110, 1988, p. 112).

Thus the active form, while being preferred to the passive early in the abstract and having a special advantage in that the verb naturally comes early in the sentence is quite limited by the type of verb that can be used; and it can suffer from the disadvantage of undue repetition ("The paper...The paper...The paper...etc.). Passives are much less restrictive in verb selection, and also avoid this repetition.

Passive Forms

Connection to the paper being described in passive

clauses is by a technique known as "perspective" connection, in which the locative meaning of in this paper (whether overtly mentioned or not) dominates the meaning of the whole clause. Using terms coined by Hawkins (1978), the clauses can be "triggered" or "untriggered" depending on whether the trigger (the course, the paper, etc.) is overtly mentioned. Thus "there is no examination" is an untriggered perspective connection, whereas "there is no examination for this course" is a triggered perspective connection.

In abstracts, as in all forms of technical writing, triggered forms are used only when necessary; the untriggered version is the usual or "unmarked" way of making the connection, and is used whenever possible. Again using the example of the examination, we would normally use the untriggered form because the connection to the course is perfectly clear without it. Because of this, the inclusion of the trigger "for this course" might indicate some rhetorical purpose such as an implied comparison with other courses (there is no examination in this course as opposed to others).

Triggering at the start of the sentence is needed for the passive verb form when the genre changes from general description to description about the contents of the paper (abstract genre). Other signals in the text may be insufficient to tell readers that the change has occurred, and so the clear signal of transition In this paper is used indicate the change.

(8)

> When a liquid spray is injected into the upper region of a closed container, it will entrain as it falls to the bottom under the influence of gravity. In some cases, the resulting flow field assumes the form of one or more large ring vortices. In this paper, the droplet drag mechanism by which this systematic motion is sustained in steady state is studied theoretically and numerically (Physics Fluids, 31 (2), 1988, p. 263).

The voice changes from a combination of intransitive and passive in the first two sentences to dominant passive in the third, but this change is not significant enough to signal the change from general description to abstract genre clearly and effectively to readers. Thus the trigger In this paper is needed to indicate this.

Less emphatically triggering can occur at the end of the sentence, and this is often more suitable when

the sentence is short. Here is an example where the first two sentences summarize the work, and the final sentence is in the abstract genre, the triggering at the end supporting the change signaled by the passive:

(9)

> A systematic comparison of the detailed behaviors predicted by current constitutive models under various loadings and the actual behavior of austenitic steels under the same loadings were carried out. This comparison leads us to reject these models and to propose a new model whose predictions seem more realistic for these loadings: the unified multilayers model in which the material is represented by a composite layer of various hardnesses. The details of the model <u>are given in the</u> paper (Journal of Pressure Vessel Technology, 110, 1988, p. 51).

Triggering also occurs within nominal groups such as "analysis presented in this study" and "examples explained here." Again the usual motivation is to avoid confusion between what is not in the genre of abstracts and what is--that is, between discussion of work done elsewhere and work presented here in this paper. Note the clear signaling of this change of genre in the following:

(10)

> It is sometimes argued that if tethers go slack, the result may be excessive platform pitch or roll motions, tether buckling, or "snap" or "snatch" loading of the tether. The <u>results reported</u> here show that a four-legged TLP would not be susceptible to larger angular motions until two adjacent legs lose tension simultaneously (Journal of Offshore Mechanics and Arctic Engineering, 110, 1981, p. 43).

The untriggered passive (in which the meaning "in this paper" is implicit) is by far the most common form used in the narrow genre of abstracts. Indeed many abstracts contain <u>only</u> that form:

(11)

> Asymptotic extreme distribution of wave loads acting on a marine vehicle <u>is derived</u> and <u>used</u> in a reliability framework to estimate the safety of the structure. Both exact arid approximate methods of reliability analysis <u>are used</u> and the resulting probabilities of failure <u>are compared</u>. The effect of correlation between the wave load and the still water load on the risk of failure <u>is</u> also <u>examined</u> (Journal of Offshore Mechanics and Arctic Engineering, 110, 1988, p. 9).

Most of the passive structures occur at the end of their clauses, but there are occasions (as with used above) where further detail follows the verb form.

Where the sentence becomes very long, the passive structure at the end of the sentence can make the sentence very difficult to read because readers do not reach the verb until the end. Imagine, for example, trying to understand the following sentence:

"An element matrix formulation which is suitable for inclusion in the Acoustic Wave Finite Element Assembly procedure, or with suitable modifications, to the more traditional transfer matrix approach <u>is given</u>."

The mark of genre coming at the end causes at least annoyance and possible confusion. Instead writers use a device known as a "split nominal" (Quirk 1972) in which the large subject nominal group (noun phrase) is split early in the sentence with the verb form to create a much clearer sentence:
(12)

> An element matrix formulation <u>is given</u> which is suitable for inclusion in the Acoustic Wave Finite Element Assembly procedure, or with suitable modifications, to the more traditional transfer matrix approach. Numerical examples <u>are provided</u> demonstrating the accuracy of the procedure (Transactions of the ASME, 110, 1988, p. 276).

The split nominal in the first sentence is stylistically essential, whereas in the second it is optional because of the shorter length. Split nominals can be used in sentences of medium or even shorter length to achieve variety in sentence structure or to avoid some perceived awkwardness in wording. Why did the author use a split nominal in the following sentence? (13)

> A theory <u>is presented</u> which will predict the stresses in a single lay standard subjected to axial, bending, and torsional loading when friction is present (Transactions of the ASME, 110, 1988, p. 138).

The answer, of course, is to avoid the extremely awkward ending "when friction is present is presented."

Split nominals are usually restrictive clauses of various type. Defining relative and -ing clauses are exemplified in Example 12. To indicate some of the

variety we might expect with split nominals, here are examples of a defining to-infinitive clause and a for-complement:

(14)

An approximate theory is developed to determine the compound stress state existing in helical wires of a cable bent through a planar circular arc (Journal of Offshore Mechanics and Arctic Engineering, 110, 1988, p. 55).

(15)

A solution methodology based on integral equations is presented for the problem of heat transfer of laminar duct flow subjected to axial variation of the external heat transfer coefficient (Transactions of the ASME, 109, 1987, p. 856).

The positioning of the verb form within the nominal groups may make subtle changes to style or meaning--an example might be if the split in Example 21 had been just before based to create an -ed clause following the verb.

The verbs emphasized and stressed in the passive can be rewritten to achieve variety in sentence structure or to avoid an initial long subject. For example, "efficiency of the numerical algorithm is emphasized" becomes:

(16)

Emphasis is placed on the numerical algorithm (Nuclear Engineering and Design, 106, 1988, p. 19).

Sentence length, rather than variety, is probably the reason for the fronting in:

(17)

Attention is especially paid to some key aspects of the numerical techniques, namely, the modelization of impact and sliding at tube-support gaps (Transactions of the ASME, 110, 1988, p. 6).

Strangely, true fronting (e.g. "Included is..." and "Presented in this paper are...") do not appear to be used--or if so, very rarely--in this narrow genre.

Anticipatory "It"

Anticipatory It clauses (e.g. "It is shown that...") also move the passive verb to the front of the sentence. The final sentence of the short abstract that follows cannot conveniently be expressed in the

usual passive way because of the long "that-nominal." Rather than use the active with the paper as subject (a technique more suitable at the start of the abstract), the authors chose to use anticipatory It with the present passive:

(13)

> A general variational principle for the fluid-structure interaction problems with sloshing is presented. Both seismic and body force are accounted for in the development. It is shown that various fluid-structure interaction formulations can be obtained from the developed functional. (Nuclear Engineering and Design, 106, 1988, p. 69).

An unsignaled statement that the formulations can be obtained would not have been within the genre of abstracts as it would have been a general statement and not an item about the contents of the paper. The full final sentence, however, is within the genre of abstracts as the meaning is clearly that the paper shows that the formulations can be obtained. The words It is shown that are not essential to the grammar of the following embedded clause, but they are essential as a mark of the abstract genre and a means of indicating the full meaning of the statement. Without them, the final sentence would be a general statement of fact, and not an indication that the proof is included in the paper. Anticipatory It clauses in this genre can be a useful alternative when both active and normal passive are unsuitable--or when some variety of sentence structure is needed amid several instances of active and passive. However, the verbs that can be used with anticipatory It in this genre are severely limited, perhaps only to shown, concluded, proved, and demonstrated.

THE GENRE OF SUMMARIES

Combined Forms

Although many abstracts contain only sentences and clauses that conform to the genre (as described in the previous major section), other forms of synopsis contain statements of other genres in addition. That is, synopses--whether called "abstracts," or "summaries," or nothing at all--often contain clauses that describe the paper (abstract genre), clauses that describe the work (summary genre), clauses that may be in the wider descriptive genre, and even clauses in the problem-solution or other genres.

When two or more genres appear in a single synopsis, the different genres often appear in quite predictable patterns of discourse, and these are described here. First though, we need to examine some of the elements of the language of technical summaries as a basis for distinguishing between the different genres found in these forms of technical prose.

The Past Passive

Summaries describe the work rather than the paper, and can include conclusions (evaluations) based on the experiments or data obtained. It is traditional to regard the work as having been done by the time the summary and/or abstract for the paper is written. Thus a past tense with a passive form of the verb is usually a marker of a summary--as opposed to the present passive for the abstract. Note the significance of the tense shift and other indications of genre in the following:

(19)

> The paper is to present experimental results of the first and second-order wave forces acting on three kinds of horizontally submerged cylinders. Wave height, wave frequency and the models' submergence were varied in the experiments. These results are compared with the numerical calculations based on the regular perturbation theory. Through this study, it was found that the calculations of both the first and second-order wave forces coincide with the experiments when the cylinders are submerged (Transactions of the ASME, 110, 1988, p. 62).

The first sentence is clearly describing the paper (abstract), but the second uses the past passive were varied (summary). Even without the following reference to the work (in the experiments), we would recognize the second sentence as describing the work purely by the tense of the passive form, but the added reference makes this doubly clear, and is useful in helping readers make the mental shift from abstract to summary genre. The third sentence reverts to the abstract genre, as indicated by the present passive are compared, while the fourth sentence is again in summary form, signaled both by the past passive in the anticipatory it was found that and by reference to the work in Through this study.

The distinction of description of paper/ description of work is clearly seen in this example, and the language criteria discussed so far support the

distinction. (The present passive are submerged as a mark of summary--not abstract--is discussed later.)

The imperfect past tense (e.g. was found) indicates incompleteness, and it therefore often requires overt or implicit complementation in the form in this work, in this study, etc., and this reference is usually clearly understood in the context. In the following example, the study is introduced in the abstract form in the first sentence, and the meaning in this study is understood in the following summary-form sentences:

(20)

> The paper presents an experimental study on the indentation and the impact strengths of iceberg and artificial snow ice. Indentation and uniaxial tests were carried out on confined/unconfined rectangular ice blocks through cylindrical/flat-circular indenters (Journal of Offshore Mechanics and Arctic Engineering, 110, 1988, p. 87).

In contrast with the imperfect, the perfect tense does not require complementation. Thus its use without specific indication that it is of summary form can result in some confusion, as in:

(21)

> Statistical models for calculating age-dependent component failure rates and system unavailabilities have been combined into a flexible procedure to forecast trends in tubular pressure...as a function of their ages. These models have been computerized, and the forecasting procedure has been applied to predicting trends at six fossil units of a specific utility. The analytical procedure is described, and its application to this example study is discussed (Journal of Pressure Vessel Technology, 110, 1933, p. 91).

Has the work indicated in the first two sentences been done in this study, or was it done by other workers? We perhaps assume the former because of the abstract form of the last sentence, but the imperfect passive (were combined, were computerized, and were applied) would have made this clearer, as complementation of the verbs in the form in this paper would have been more clearly implied.

The choice of the past tense is significant in:

(22)

> Post-instability fingering in rectilinear

> flow in a Hele-Shaw cell has been studied experimentally. Of particular interest was the characterization of the range of length scales associated with tip splitting, over a reasonably wide range of parameters. A digital imaging system was used to record the patterns as a function of time, which allowed properties such as the tip velocity, finger width, perimeter and area to be studied as functions of time and capillary number. The tip velocity was observed to be approximately constant regardless of the occurrence of splitting events, and the average finger width decreased as the degree of supercriticality increased. Quantitative measures of the fact that there is a limit to the complexity of viscous fingers are provided (Physics Fluids, 31, 1983, p. 242).

The change of past tense from the perfect (has been studied) to the imperfect (was used) tells us--though not perhaps with total clarity--that the first two sentences discuss earlier work used as a basis for this work, and that the summary (description of this work) starts with Sentence 3. This in fact is what the full paper explains in detail, but readers of abstracts or summaries should not be expected to have to refer to the main document to understand such things. A triggered transition (In this work) to start the third sentence would have been a useful addition here.

Many writers avoid such confusions by clearly signaling general statements, and distinguishing between them and summary statement. In the following example, the trigger in recent experiments supports the generality of the perfect passive, and the editorial We used by this single author indicates work done by that worker and not by others earlier.

(23)

> Oscillatory convection has been observed in recent experiments in a square air-filled cavity with differentially heated sidewalls and conducting horizontal surfaces. We show that the onset of the oscillatory convection occurs at a Hopf bifurcation in the steady-state equations for free convection in the Boussinesq approximation (Transactions of the ASME, 109, 1987, p. 394).

Verbal Criteria

As we saw in Example 19, the criteria of present passive is not an infallible one for the genre of abstracts: the present passive are submerged is seen to

be part of the work and not the paper describing it. To determine this, we need to appeal to the meaning involved both in the verb itself and in the context in which it is used. We have already discussed groups of verbs that are suitable for use with the paper as subject, and others for use with anticipatory it in abstract writing. We now have to recognize similar limitations on the verbs which can be used with the present passive to indicate description of the paper rather than the work, or for more general description.

Many verbs can be used to describe the paper or the work (e.g., found, compared, observed, calculated, obtained) and for these we often have to rely on the tense to indicate the genre if no other signal is present:

(24)

> The best heat transfer performance is obtained with the minimum scheme, intermediate and complete crossflow being associated with varying degrees of degradation (Transactions of the ASME, 109, 1988, p. 872).

Because the performance could have been obtained from the work or the paper in this example, we have to use the present passive criterion to establish that this is in the abstract genre.

Other verbs, however, can be classified as being suitable only for summaries--whether or not they are present or past passives. Examples are the action verbs that only people and not papers can do (assembled, constructed, measured, moved, installed, etc.). Cognitive verbs such as think, understand, and know cannot be used for abstracts or summaries, as they cannot be used to describe the paper or the work; thus these are signals of the wider descriptive genre whether they are in the active or passive, or whether they are in the present or past tense. An example is:

(25)

> Cables and wire ropes are known to both elongate and reduce diametrically during their lifetime (Transactions of the ASME, 110, 1988, p. 32).

The tense of the passive is also unreliable as an indicator of abstract or summary genre where -ed clauses are used as they are tenseless passives:

(26)

> Natural convection flow induced by localized heating from below in a horizontal porous layer is investigated numerically. The geometry considered

> is a two-dimensional rectangular cavity whose portion of the bottom surface is isothermally heated (Numerical Heat Transfer, 13, 1988, p. 91).

Do the writers intend "The geometry that was considered (in the work)" or "The geometry that is considered (in the paper)"? As either interpretation is possible, such forms appear equally well in abstracts and summaries, and often need some clarification.

Summaries form a much wider genre than do abstracts, both in terms of the forms of language used and in terms of their use, and the types of information they convey. They can include details of results, recommendations, and conclusions, and many types of evaluation of the techniques used or the results obtained. Only a very brief introductory analysis is provided here, to enable us to investigate information structures involving abstracts, summaries and other technical genres in synopses.

RELATED DISCOURSE PATTERNS

An Overall Information Structure

Many "abstracts" contain only statements which we can now see as being of the abstract genre, while others also contain information in the genre of summaries. As we shall see in this section, we must also expect information related to problems, solutions, purposes, and evaluations; and also to the wider genre of description. That is, many "abstracts" are a complex combination of many genres of writing and many types of information--not just information about the contents of the paper.

To allow us to comprehend how these complexities relate to each other within the text, it is useful at this stage to recognize, purely as a theoretical framework, an initial six-part pattern of thought and action which researchers might consider as potentially useful information to include in an abstract/summary of research work:

1. Background theory or premise
2. Earlier work
3. Contents of the work (summary)
4. Contents of the paper (abstract)
5. Details of the results
6. Evaluation of the results.

This six-part pattern is exemplified in the following example, for which the sentences have, been

numbered to help us follow the analysis:

(27)

> (1)Fatigue life estimates that use a structural material's constant amplitude stress life data values and a linear cumulative damage rule are always nonconservative for stress histories containing numerous subcycles and only a few large-amplitude cycles. (2)Conservative fatigue life estimates were previously achieved by others with a plastic work interaction damage rule using the material's overstrain fatigue life parameter values. (3)Verification fatigue tests were run on laboratory specimens of 1020 steel using four selected variable amplitude stress wave form profiles. (4)This paper extends the application of the plastic work interaction damage rule to narrow band Gaussian random stress situations. (5)The derived stress life mathematical expression is of a power law form. (6)The predicted fatigue life is more accurate than that predicted using a conventional linear damage rule (Transactions of the ASME, 1988, p. 83).

The first sentence provides in invariable truth (note the are as the basis for the work, and this is followed by details of earlier work signaled by previously and by others--a clearer method than the perfect passive have been introduced. Details of the work conducted by the author (summary) are given in the third sentence, indicated by the imperfect passive were run, and This paper extends tells us that the fourth sentence provides details of the paper (abstract). The last two sentences include the present intransitive is to present details of the results and their evaluation (by the comparative more accurate than).

While we must not be tempted to claim that such a structure is ideal or even desirable as the basis for describing research work in abstracts/summaries, the underlying information pattern is useful in helping us to recognize typical discourse patterns in this form of technical writing. Much more typical than this example are instances where two or more of these types of information are included, and we will now investigate the related discourse patterns. Discussion of simple abstract/summary combinations will be followed by patterns involving problems and solutions, overtly stated purposes, and evaluations.

Abstract/Summary Combinations

Of the six types of information listed above, details of the work (summary) and details of the paper (abstract) are the most prevalent forms found in "abstracts"--presumably on the basis that these are the most vital items of information to be conveyed in the limited space available. Also, following the sequence of those six types (and the time sequence in which they occurred), it is usual to discuss the work first and then the contents of the paper:

(28)

> The effect of the assumed shape of the nozzle corner flaw on the distribution of the stress intensity factor along the crack front was <u>determined</u>.... Stress intensity factors computed from the nozzle corner flaw models <u>were also compared</u> with solutions evaluated.... <u>The results of this paper</u> confirm the adequacy of the simplified procedure for the analysis of nozzle corner flaws of different shapes (Journal of Pressure Vessel Technology, 110, 1988, p. 59).

The first two sentences given here summarize the work, as seen by the past passives, and the final sentence provides information about the paper (abstract).

As thinking about or evaluating the work is also part of the work itself, we often find statements assessing the work interposed between statements of summary and abstract:

(29)

> A systematic comparison of the detailed behaviors predicted by current constitutive models under various loadings and the actual behavior of austenitic steels under the same loadings <u>was carried out</u>. This comparison leads us to reject these models and to propose a new model whose predictions seem more realistic for these loadings: the unified multilayers model in which the material is presented by a composite of layers of various hardnesses. The details of the model <u>are given in the paper</u> (Journal of Pressure Vessel Technology, 110, 1988, p. 51).

The sentence between the two clearly signaled summary and abstract sentences discusses the thinking and decision-making process of the researchers; such information is best regarded as an extension of the summary, as it is not stated as being included in the paper.

When evaluative comments occur after the abstract portion of the synopsis, they are more likely to

evaluate the material in the paper than the actual work, and should thus be viewed as being of the abstract rather than the summary genre:

(30)

> Both the initiation and the propagation of macroscopic creep cracks have been studied in 316-L austenitic stainless-steel, and for comparison purposes, in 2219-T851 aluminum alloy. These alloys are, respectively, creep-ductile and creep-brittle. This difference in behavior is explained in terms of fracture mechanics concepts applied to creeping solids.... Finite element analysis coupled to continuum damage mechanics is found to describe creep crack initiation in 2219-T851 (Transactions of the ASME, 110, 1938, p. 42).

Problem-Solution Structures

The six-part information structure discussed earlier can be viewed another way, in which Item 1 is the "Situation," Item 2 presents an intellectual "Problem," Items 3 and 4 provide the "Solution," and Items 5 and 6 are the "Evaluation" of the work, and the paper. The synopsis then follows the "Situation-Problem-Solution-Evaluation" structure 5, 6, 7 common to many technical documents:

(31)

> Mastery learning theorists make claims about reduction in learning time variability among students which, if valid, will have far-reaching implication about the nature of individual difference and equality of educational outcomes. These claims have stimulated considerable controversy. This review is an attempt to asses both mastery proponents' and mastery critics' claims in the context of learning time differences.... It is suggested that issues in this debate illustrate equality, time, and achievement dilemmas which may be inherent to most forms of collective instruction (Review of Educational Research, 54, 1984, p. 556).

Closely connected with the problem-solution pair of relations in the purpose-means pair. Often the purpose is to obtain a solution, and thus the means of achieving the purpose is the solution to the problem. This interconnection of thought and action can be seen in:

(32)

> To reduce the stress level at nozzle to spherical pressure vessel intersections, reinforcement is

generally added to the sphere, the nozzle or both. This paper describes the development of a computer code using closed-form solutions to analyze this problem (Transactions of the ASME, 110, 1933, p. 64).

We see a purpose-means relation in the sentence, signaled by the subordinate to-infinitive clause (the purpose) followed by the means in the main clause. This presents the intellectual problem which is solved by the information presented in the paper. The purpose-means connection is often more direct:

(33)

In order to calculate the rocking response of the unanchored cylindrical tank, including the bottom uplift due to seismic loading, a simple but effective method is developed (Transactions of the ASME, 110, 1988, p. 76).

More usually, the purpose clause follows the main clause which contains the information about the paper itself. The final example in this paper included final clauses of purpose signaled by to-infinitive clauses, and also a final by...ing clause indicating means:

(34)

The methods of plastic limit analysis are used to determine pressures of a flat rigid punch on a columnar ice sheet.... Representative strength parameters of columnar sea ice are used to define anisotropic yield criteria for the ice sheet.... Numerical results are obtained by applying the lower-bound theorem of plastic limit analysis (Journal of Offshore Mechanics and Arctic Engineering, 110, 1938, p. 81).

FINAL COMMENTS

This analysis has defined the descriptive abstract terms as a narrow genre of the wide genre of technical description. While this narrow genre has general features in common with other descriptions (especially semantically as it describes a defined topic), it contains certain linguistic features which set it apart from other narrow genres of description. One main method of indicating the contents of a document is the use of the document as grammatical subject of a select number of verbs in the active voice. Use of more general verbs can overcome some of the difficulties of apparent personification of the document, but the method is still limited by repetition and to some extent by lower level of maturity of writing style with the active for the narrow genre.

The use of the passive voice often overcomes the problems inherent in the active with the document as subject, and the passive is therefore the predominant voice in the genre of technical abstracts. The main difficulty with the use of the passive (the appearance of the verb form at the end of quite a long sentence) is often overcome by the use of split nominals, fronting, personal pronouns referring to the writer(s), and anticipatory it. Passive forms are usually untriggered, but triggering is used for emphasis and to indicate transition from description or summary writing to the genre of abstracts.

With the present passive usually a clear mark of the genre of abstracts, the past passive often indicates summary writing. Because of the need for verbal complementation for the imperfect but not the perfect, the imperfect is a clearer way of indicating information about the research work rather than work in general; triggering makes this intention clear. However, some verbs tend to indicate abstract, some tend to indicate summary, while others tend to indicate general information--irrespective of the voice or tense.

Stages of the thought/action pattern of researchers as they plan and conduct their work, describe the document and analyze the results can be understood. We can describe information structures for synopses containing this information in terms of the full details in terms of them simply containing some elements of the larger time-oriented sequence of thoughts and actions. Problems and solutions and the related concepts of purpose and meaning are seen as crucial elements in such an understanding.

Further Research

Relatively speaking, this was quite a simple task, as the genre of "prose contents" information has very clear and quite simple linguistic characteristics which support the aim of describing the document. Because of this simplicity, it may not be too presumptuous to claim that the work here is a reasonably definitive study of the language features if not the actual information structures found in the main function of technical abstracts. It is also reasonable to expect that other narrow genres of description (e.g. classifieds, plaques, food labeling, movie titles) will also yield to thorough yet not too involved analysis of their linguistic characteristics.

Yet the harder task which faces us is to achieve a much more thorough understanding of various linguistic features of summaries and the information structures they contain. Although the tentative suggestions regarding verb choices and tense included here might help to establish them as minor elements in such an eventual understanding, there is obviously very much more involved.

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TA TRAINING IN COMPOSITION SHOULD NOT ONLY INCORPORATE RHETORIC AND COMPOSITION THEORIES AND THEIR APPLICATIONS, BUT ALSO SOME LINGUISTIC PRINCIPLES

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Directors of composition or faculty supervising GTAs often encounter strong resistance from traditional teachers in their departments, when they apply or attempt to apply in that training the new rhetoric paradigm (as opposed to the traditional pedagogy) and the teaching of ideas. This can hinder the quality of effective training. This is why I concur with the ideas of Linda Flower, Erika Lindermann, Peter Elbow, Janet Emig,and Donald Murray, among others, that this teaching should incorporate a diverse but unified pedagogical approach. That is, the new pedagogy should include training the GTAs in helping their students to discover that no writing is easy to come by. And if the new writing teachers succeed in delivering this message--by teaching the different processes involved in the act of writing, not only by applying the theories of rhetoric and composition, but also by incorporating some principles of linguistics--they will be bound to succeed in helping their students write well.

Part one of this paper will analyze the characteristics of a sound TA training program in composition. ([Its goal should be effective training of the new college writing teacher, while its aim should always be "unification of diversity "] as in Training the New Teacher of College Composition.) Part two will examine the choice of emphasis by directors of composition or supervisors of TAs, which should include appropriate training in the different theories of rhetoric and composition and their applications, some aspects of the research done in the writing and discourse disciplines. Here I will argue for the need to incorporate some linguistic principles in TA training, specifically, the function of language in the composing process, at the planning, drafting, and revising stages.

First, a brief outline of the characteristics of the program should look like this:

(A) What a coherent and effective GTA program should incorporate
(It should fit each department's needs and priorities)

1. Participation of senior faculty (?)

2. Number of courses and their different levels (and workshops?) for TAs-- and undergraduates (?)
3. Choice of emphasis: to require writing assignments of the TAs--e.g., journals of the readings (on the teaching of writing)--to help them improve their own writing; and choice of course curriculum arrangement--either around rhetoric/composition theories and their applications or around specific themes as they are found in the texts
4. Other activities: observing and evaluating teaching, workshops on time management, and practice in how to handle classroom problems

(B). Training and encouraging the TA to teach writing by incorporating the world of ideas" (and FANTASY and IMAGINATION--as suggested by Ann E. Berthoff and Gabriel García Márquez) and thus, critical thinking through a rigorous reading approach--in a setting of thematics, that should include socioeconomics, psychology, and political thought. Readings may include: Elizabeth Cady Stanton, "Declaration of Sentiments and Resolutions"; Henry David Thoreau, "Civil Disobedience"; George Orwell, "Why I Write" vs. Joan Didion's "Why I Write"; Orwell, "Politics and the English Language"; Karl Marx, The Communist Manifesto; Martin Luther King, "Letter from Birmingham Jail"; John Kenneth Galbraith, "The Position of Poverty." [Writing is power, for it empowers the writer economically /politically/ psychologically. And writing no longer is concerned with the correctness of grammar and mechanics as the pedagogy for "good writing," but with the composing processes, where the writer learns about the world in which he lives, as well as his place in it. As James Britton claims, "The world we respond to, in fact, the world towards which our behaviour is directed, is the world as we symbolize it, or represent it to ourselves."]

Secondly, I want to argue that the new rhetoric paradigm (as opposite to the traditional/orthodox paradigm) in the teaching of college writing should evolve from a coherent pedagogical philosophy that must include discovery and awareness of the world around us, through the use of syntactical patterns and rhetorical devices--avoiding, however, the teaching of grammar and mechanics in isolation. This teaching should incorporate applications of the composing processes and revising theories expounded by--among others--Kenneth Burke, Lindemann, Richard Lanham, Joseph Trimmer, Dorothy Augustine. It should also include Computer Assisted Instruction. TAs should be trained in the application of Burke's theory that: first, the writer is agent of a purpose, which is to induce a response beyond the initial NO! That is, every human being is a critic who must suppose (in writing) that the reader will take an

adversary position (the reader is also a critic). The agency in almost every case of communication is language or "symbolic action" (Language as Symbolic Action) and the act of communication is nearly always expressive, rather than informational (which is incidental to expression of a point of view, according to Dorothy Augustine). Lastly, the future teachers of composition should be reminded that writing will become easier to approach if student-writers understand from the very beginning that the writer (or agent) and the composing process (not the product and the art of editing--although they both are essential tasks for clear style) should be the proper focus of planning, drafting, and revising--or the three stages of the composing process [as they are discussed in Writing With a Purpose]. (This should include the definition of rhetoric, periodization, major representatives, and some historical background, as well as the constant changes and emphasis of rhetoric/composition theories and their new applications.)

Now, the need to incorporate some linguistic principles in our training of the new writing teachers, the emphasis of this paper, is best summarized here by Donald C. Freeman in "Linguistic and Error Analysis: On Agency": "...linguistics can be of the greatest help to the teaching of composition not in presenting a bundle of rules to be taught directly to students--that approach, in the sixties, was an unqualified disaster--but as a tool that can provide a set of heuristic devices for the construction of a pedagogical grammar in which it might be better, instead of sections on, say, subject-verb agreement, pronoun reference, and parallelism, to have a section on agency..." (170-171). The creation of a "pedagogical grammar" that is based on an empirical "system of error analysis," rather than on correctedness, is what Freeman is here advocating; a system different from that of the orthodox "pedagogical grammar and scholarly grammar." This modern linguistic approach--generative-transformational--will help student-writers become simultaneously aware of the interrelations of the composing process and how the English language functions in its role of agency of communication, as well as the different dynamics that transform that language (as with Jacques Derrida). The approach to incorporate inguistic principles in TA training should include speech and writing discourses, nature of language, the differences between grammar and usage, the grammatical approach and its advantages and disadvantages, e.g., the new versus the traditional typology of grammar, heuristic discourse, tropological constructs and so on. As claimed by Mark Lester in his book Introductory Tranformational Grammar of English, one of the most

important goals of the "transformational revolution was to explain ambiguity and paraphrase relationships" (15).

Lindemann, in the Chapter "What do teachers need to know about linguistics?" (A Rheteoric for Writing Teachers), emphasizes the importance of training TAs in composition and all future teachers of writing in some applied elements of linguistics. The reason is that even today most of us think that the intuitive knowledge of language we possess from the time we learn to speak that language ('competence, ' it is called in linguistics [Lindemann]), endows us with total knowledge of that language (e.g., its nature, its roles in different human activities). But experiencing language, Lindemann reminds us, is not enough and this is where well-trained writing teachers can help student-writers to gain writng skills--by writing, not by memorizing grammar rules.

Teaching English, thus, necessitates "a second kind of knowledge, a 'conscious understanding' of linguistic principles," according to Lindemann (93). She quotes Charles Hockett (A Course in Modern Linguistics p 2): 'Native control of a language does not in itself imply conscious understanding of how the language works, or ability to teach it--any more than having cancer automatically makes one a specialist in cancer diagnosis and therapy' (93). Paraphrasing Lindemann,then, the more writing teachers know about how "English works," the more effective they can be in their teachings. If style means making choices, then, knowledge of linguistics will allow these teachers a wider range of options they can share with their student-writers. We are reminded here of that incisive essay by Ross Winterowd, "Words," where he argues that stylistically writers can only make choices when those choices are available; that is, when they possess linguistic options.

This brings us to another reason writing teachers "need to secure knowledge of linguistic principles" as stated by Lindeman (93) in support of Charles F. Hockett's same argument. That reason is the faulty belief, by people in general and even writing teachers, that "good" English is dead, or that there is a crisis in the American English that Lindemann calls "'disease' prose." What they are objecting to is the use of English that does not conform to the conventions of the so-called "Edited American English (or 'standard edited English'" (Lindemann 100). The clash here is rooted in linguistic innacuracy in their linking of "usage to standard English" (Lindemann 100). What they are claiming is that "there is an absolute right and wrong way to use the language. The wrong way denotes nonstandard English; the right way defines the standard" (Lindemann

100). But "the wrong way 'simultaneously,'" Lindemann advocates, "defines standard English; that is, people find it much easier to say what standard English is **not** than to describe what it is" (100). Here is an illustration of my point (based on Lindemann's): since each individual speaks different types of the same American English and therefore his or her speech differs in "pronunciation, vocabulary, and syntax" from that of others, what they are all doing is using elements from different idiolects. Thus, continues Lindemann, "idiolects are unique" in that "no two people share the same idiolect," and therefore people end up speaking different dialects, which "Strictly speaking represent collections of features idolects have in common, shared similarities in pronunciation, vocabulary, and syntax" (100). This is the result of the different "forces" that mold "language patterns" (100), e.g., class, gender, race, et al.

These differences in dialect, further expounds Lindemann, are the result of historical migration and cultural, religious "boundaries," as well as "social mobility"--among other factors. But at the same time, other factors allow and impose "uniformity" in usage within the same society or culture. American English, for example, has many "dialectical differences" due to "regional dialects." (In the eastern part of New Mexico, the New Mexican born, and especially the uneducated, will pronounce the **o** of holiday as the Australians do: "**Holidai**." And as Lindemann's copy of the Linguistic Atlas Map of Middle and South Atlantic States shows [Fig. 7.2, p.103], in different parts of the United States the past tense of the verb **to dive** is interchangeably used as **dived** and **dove** [102]). These are examples of difference in usage--which is restricted and ruled by the so-called standard English. This standard English, however, is codified and forced on a society or group of pepople by the dominant society or culture. As Lindemann suggests, writing teachers would help students write more effectively if they allowed them a wider range of "options." This can be easily accomplished by making the students work with a dictionary and a thesaurus in hand, as well as a usage manual. In turn, this activity will automatically increase the students' "sensitivity to and tolerance for varieties of English" (102).

As is widely accepted in the different branches of linguistics, the basis for the dominant groups forcing standard English upon others is part of these groups' own reaffirmation of power--in their "quest for certainty" (using John Dewey's expression)--by means of controlling the mases (collective thinking) through the officially accepted usage of standard written and verbal discourse. The "value judgments they make about" others' speech--which are purely

"ethnocentric"--will reaffirm their wrong assumption that their dialect is superior. And this is the confrontation the well-trained writing teacher will know how to handle: by allowing "Linguistic tolerance," which as Lindemann explains, is viewed by the "traditionalists" as "'corrupting' the English language" (102).

The preference of the traditionalist and the dominant society for certain "accepted" types of speech should be seen by the new writing teacher as something not different from that of the student-writers' preference for a specific type of music or food or usage--which has possibly been influenced by their own age-group or socioeconomic backgrounds. The "value judgment" we make, then, about someone else's use of language indicates "personal values, not linguistic facts. Still, even well-educated people construct elaborate rationalization to buttress their attitudes about cultural, social, and linguistic differences" (Lindemann 104). This type of judgment is a fallacy, research shows (and Lindemann directs the reader to: Jean Malmstrom, "Linguistic Atlas Findigns Versus Textbook Pronouncements on Current American Usage," English Journal 48 (April 1959), 191-98; Thurston Womack, "Teachers' Attitudes Toward Current Usage," English Journal 48 (April 1959), 186-90). Indeed, as Lindemann reports, one of the most interesting findings by Braddock, Lloyd-Jones,and Lowell Schoer (Research in Written Composition, NCTE, 1963) indicates that "formal grammar instruction doesn't improve writing ability, principally because writing involves a great deal more than merely editing a written product. Students learn to write by writing, not by analyzing or diagramming sentences someone else has written, not by memorizing parts of speech which have been divorced from the context of student prose. Unless grammar instruction derives from actual discussion of student papers, these studies conclude, it has no useful connection to the composing process. As Weaver points out in Grammar for Teachers, research does not support the notion that learning grammar is useful in attaining any other goal, except learning grammar" (Lindemann 105; my emphasis).

Henceforth, I want to argue that the new teachers of composition should be trained to "revise" their "assumptions and expectations"--as Lindemann also suggests, because "Writing that says nothing to no one in particular, regardless of the dialect it's written in, is ineffective" (Lindemann 107). I am suggesting that these new teachers also be trained in grammar, so they can teach their freshman composition students how the English language functions--among other complex but essential issues in the

composing processes. As such those new teachers will help their students write better if they include applications of grammar from different perspectives, in particular by knowing they will have more "linguistic options" whether for editing or syntactic choices. It will, too, assist writing teachers in their evaluation of "curricula, instructional materials, and teaching practices" (Lindemann 107).

So, then, how to teach grammar? Well, first let's consider why the "outdated" methods are still used today in the teaching of English methods which were modeled after the pedagogy of the teaching of Greek (and then of Latin)--as far back as 100 B.C., when Dionysius Thrax codified "a grammar of Greek, based on the written, not the spoken language" according to "parts of speech." (Latin followed the same course.) As we are further told by Lindemann, still today some writing instructors continue "teaching parts of speech," requiring that students memorize verbs, nouns, and pronouns; and these instructors also define 'excellence' "with reference to great works of literature" (108). These same teachers are still using the "error-oriented" approach--which dates back to the Middle Ages when Christian theology forced on people the belief that "change" was bad --"emblematic of the human condition since the fall from grace in the Garden of Eden" (thus language change was bad, too) (108). And, again in the eighteenth century, when the grammarians rigidly revived the teaching of language based on the two previously mentioned models--the classical and the "orientation toward correctness"--scholars explained language as being "'logical,' reasonable in a scientific, mathematical sense." Thus these scholars and teachers "adopted the following aims: 1. To devise rules governing 'correct' English usage....2. To refine the language removing 'deviant' constructions and introducing 'improvements'....3. To fix the English language and prevent further deterioration" (108-9). It should follow, then, that our new writing teachers need not be encouraged during their training to follow the oudated, rigid, and erroneous "legacy" of prescriptive grammar.

And, then, in what kind of grammar--traditional (prescriptive), structural, transformational (both descriptive) should we train our TAs? Although the structural approach will benefit student-writers immensely over the conventional prescriptive paradigm, the generative-transformational approach will prove more effective at the end. First, It would be hard not to agree with Leonard Bloomfield (the most important pioneer of modern linguistics) on his theories on language--especially with (among others) his postulated definition of "the methodology of the descriptive linguist" in his book Language

(1933). Here he maintains that a practical approach to grammatical applications (that of structural grammar) must include objective description, classification, and analysis of language samples. But this exercise must be absent of value judgment and "generalizations" that will tamper with "the evidence" at hand (Lindemann 111).

As pointed out by Lindemann, "The structural grammarian...sorts language data into three levels: the smallest units of language or individual sounds (phonology), groups of sounds that have meaning (morphology), and the arrangement of morphs which signal complex relationships in phrases, clauses, and sentences (syntax)" (111). That is, different from the approach of the traditional grammarians, their interest is not in the grammatical analysis of the parts of speech and the etymological meaning of words in a phrase, sentence, and clause but, rather, in the way terms function in them--their connotation, syntactic interrelations, and "morphological evidence." With the structuralists' approach to grammar other "sentence elements" become easier for students to understand (112). This approach is not "correctness" oriented, but language-use oriented.

Next, generative-transformational grammar offers a wider range of "linguistic options" over the structural paradigam. It will allow student-writers a multifaceted number of syntactic and word choices, because it will let writers be languagers--capable of creating their own sentences since they already possess an "intuitive knowledge" of their native language, as Noam Chomsky maintains. This "competence" (Lindemann) is based on the fact that "All human beings acquire the ability to use language without formal instruction" (112). Unlike the structuralists' approach (based on "performance"), the generative-transformationalists' methodology (based on "competence") includes the mental process in sentence formation (language making). Thus "Defining sentence" becomes the crux of the transformationalists' approach. Sentence-combining is one of the most useful tools in the intuitive process of making language. This exercise will allow students "to practice transforming simple declarative sentences and constructing increasingly complex sentences, enlarging their repertoire of syntactic options, improving their ability to perform sentences" (Lindemnn 115). Thus "competence" in linguistic options will improve the student-writers' "ability to edit their work" (115).

I take it, then, that TAs in composition should not be only trained in rhetoric and compostion but also in some linguistic principles. A disservice to new writing teachers will continue if

they are not required to learn how the English language functions, so that they can teach their students how to apply the manysided linguistic options (the crux of any clear style) in their stylistic approaches to composing. These instructors, nevertheless, don't need to teach the theories of grammar, but they should know them as well as their applications.

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XI

HUMAN LINGUISTICS

CONCEPTS OF TEXT AND KNOWLEDGE

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For over two millennia texts have been conceived and analyzed in the familiar terms of a semiotic relation between signifier and signified given by grammar and lexicon. Since human linguistics rejects the traditional concepts of language and grammar as being unscientific, focusing instead on people (Yngve 1981, 1983, 1986), one might expect that it would also have to reject the study of texts. But as I will show, it actually provides certain welcome advantages in their study.

1. Objects of nature and theories in natural science

Human linguistics, like physics, chemistry, and biology, studies objects of the real world that are given in advance of theory. It can therefore test its theories or models against observations of the real world and adhere to the usual scientific criteria of acceptance, which in the strict sense are closed to traditional approaches through language and grammar.[1]

The physical objects involved in studying texts are, first, the physical texts themselves: the books, journals, manuscripts, billboards, and the like. We can include the paper, pens, and other instruments of their preparation, manufacture, or transmission, and the light-waves by which we see them. But most important are the people: the writer, the reader, and the communities of people to which the writer and reader belong. Without the people, the writing has no significance.

The key to developing a true linguistic science is to remember always the distinction between the observable objects and our scientific theories of them. It is the distinction between the real world that exists in advance of theory and the constructed domain of scientific theory that represents or models the real world as accurately as possible. Since the real world exists independently of any particular observer, it may be possible for observations and tests of theory to be checked and verified by others, often using different methods. The scientific criteria of acceptance involve the fit between the statements and predictions of theory and the results of observations and experiment. In this way our scientific knowledge is advanced by a self-correcting process that tends to converge. We can contemplate reaching general if tentative agreement on scientifically justified results. This would move linguistics more into the mainstream of science.

A frequently used and powerful method of science which linguistics can adopt is to define theoretical entities called systems to represent various regions of the real world that are the object of study (Yngve 1985). Examples are an ecological system, the digestive system, the vocal tract, and the solar system. System boundaries are set up to define the scope of our theoretical interest. These boundaries are set arbitrarily so as to simplify the theory by including the objects and phenomena of interest and excluding other possibly related phenomena that are not currently under study. Then, in order to account for the interactions between the objects under study and the rest of the world, we postulate inputs and outputs that cross the system boundaries.

Corresponding to the books, journals, manuscripts, and the like, human linguistics sets up systems called props. For the light-waves by which we see them, a system called a channel is set up. The instruments of preparation can be analyzed either as part of the channel or as props. Corresponding to the people involved, individually, systems called communicating individuals are set up. If the physical environment is relevant, there is a system called a setting.

At the higher level of groups we set up systems called linkages. A linkage is a system modeling one or more persons, the physical means of communicating such as sound or light, relevant objects, and the relevant parts of the environment, all taken as a whole as a higher-level system. Thus the constituents of a linkage include one or more participants, which are specializations of communicating individuals, a channel or channels, and possibly one or more props and settings.

For the analysis of text we can set up a linkage involving the writer and reader as participants, the text as a prop, and the light waves and possibly the objects of production as parts of the channel. See figure 1.

Alternatively we could set up two linkages: one linkage having the writer as a participant, the text as a prop, and the means of production as a channel; the other linkage having the reader as a participant, the text as a prop, and the light waves as the channel.

There can also be linkages of linkages and complex structures of linkages corresponding to the communities involved. There can, of course, be different communities associated with the writer and the reader.

2. Properties

Systems in science are defined not only in terms of their boundaries but also in terms of properties. Properties are

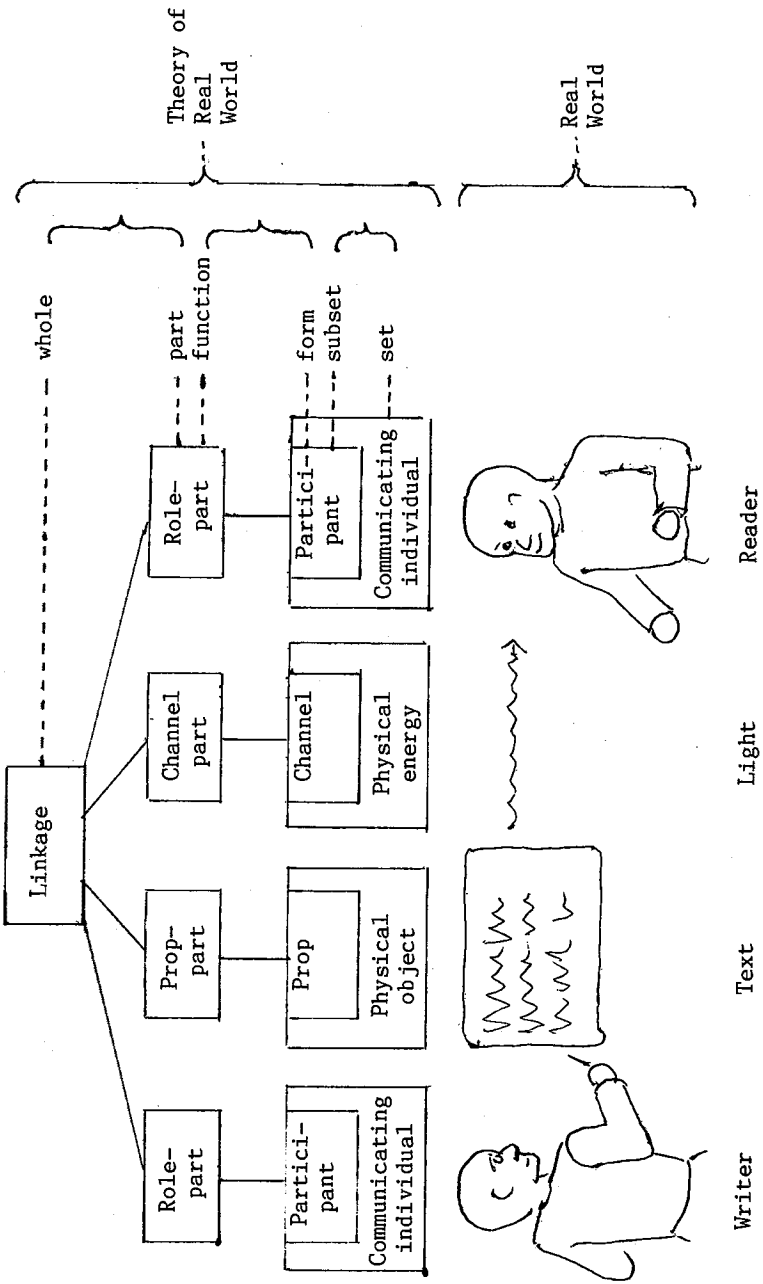

Fig. 1. Relation of systems in human linguistics theory of the real world.

constructs having an explanatory role in our theories of the real-world objects that the system represents. Thus the solar system has properties of the mass of the sun, the orbital parameters of the planets, and so on. These properties figure in the well-known theories of orbital motion in physics and astronomy. A vocal-tract system has properties that play a role in physiological and physical theories of the production of the sounds of speech but not properties related to digestion.

The systems in human linguistics are likewise defined in terms of properties. These properties are postulated by the linguist and the theories stated in terms of the properties are then subject to test against observations of the real writers, readers, texts, light waves, and instruments of production.

A communicating individual is a system having just the communicative properties of a person, leaving aside noncommunicative properties like blood pressure and immunity to polio. A system corresponding to a writer or a reader would be a participant. The properties of a participant form a subset of the larger set of properties of the communicating individual, just those relevant to the linkage currently under consideration. For example, if a person can read and write both French and English, but in the current linkage is writing a letter in French, then the participant would be primarily described in terms of the French properties of the individual.

Similarly, the properties of a prop form a subset of a larger set of properties of a concept of a physical object, just those that are relevant to the linkage under consideration. For example, if you pay for your groceries with a check, only certain physical properties of that piece of paper are relevant to the communicative transaction and are prop properties. The color of the paper and ink used and the typeface are properties of the object that are irrelevant to this linkage and are not properties of the prop. They may be relevant in other linkages, however.

There are similar considerations for channels and settings.

Linkage properties are properties of a system that includes all the participants, props, channels and settings. Properties having to do with the topic of discourse, with misunderstandings, with agreed conclusions can all be conceived as properties of the whole linkage.

3. Relation of individual to group

The question arises as to how the higher-level properties of the linkage as a whole relate to the lower-level properties of the participants, props, channels, and settings. This gets us into a consideration of form and function.

Let us consider a simple illustrative example. If you pay for your groceries with a check, the linkage has participants representing you and the cashier, a prop representing the check, and also appropriate channels involving the instruments and the light. There is a communicative interaction between you and the cashier. Corresponding to this there are dynamic properties of the linkage related to payment due for the groceries, payment made for the groceries, and the groceries having been paid for.

You might on another occasion pay with cash. Either form of payment has the same function in this linkage in that the groceries get paid for. But the props are different in form, a check on one occasion, cash on another. They have different properties, being the subsets relevant to this linkage of the properties of different physical objects. But although these props differ in form, they both function in the same way in the linkage in terms of payment being made. This same function is a system called a prop-part. The check as a prop is characterized by formal properties having to do with the physical writing on it: the name of the bank, the amount, the signature, and the date. The corresponding prop-part has functional properties having to do with its efficacy as payment for the groceries in this linkage.

A form-function distinction is also necessary in connection with people and the other physical objects involved in communication. Participants, channels, and settings are each defined in terms of formal properties, and in each case they are a subset specialized to the linkage under study of the broader set of properties of a person, a means of energy flow and an environment. The corresponding functional entities are systems called role-parts, channel-parts, and setting parts. See figure 1. again.

For example, suppose I am in a foreign city and want to take a taxi to the airport. Not being able to speak the language, I have memorized a few phrases useful in telling a taxi driver to take me there. As a participant I am quite different from a native of the city also telling a taxi driver to take him to the airport: his participant properties are a subset of his native-speaker properties. Although we have different properties as participants and are doing quite different things, our efforts are functionally equivalent in the linkage with the taxi driver: he understands where we want to go and takes us there. The role-parts may then have identical properties since they are functionally the same. If we want to take into account that the taxi driver may try to charge me more, we would set up a broader or different linkage to reflect the other properties related to the financial transaction associated with the trip.

Formal and functional properties are quite different, for they are set up on the basis of different evidence. Formal properties, being subsets of the properties of the objects that

are relevant to the linkage under consideration, are established on the basis of comparing different objects and the same object at different times. Functional properties, on the other hand, are related to the linkage rather than to the object. They are established on the basis of comparing different linkages and the same linkage at different times, and analyzing the function of the prop-part in this linkage.[2]

The role-parts, prop-parts, channel-parts, and setting parts are conceived as the functional parts of a linkage. Thus they bear to the linkage a relation of part to whole.

So we see that in human linguistics the relation of the individual to the group goes through three stages. There is a set-subset relation of a communicating individual to the corresponding participant. There is a form-function relation between the participant and the corresponding role-part. Finally there is a part-whole relation between the role-part and the linkage. Similar relations hold for props, channels, and settings.

These three relations between the levels are necessary and sufficient to characterize the relation between individual and group in human linguistics. And since communicative interactions account for the vast majority of interactions between people in this world, these three relations are candidates for characterizing the relation of individual to group in the social and behavioral sciences in general.

4. The functional aspects of text

Let us pursue the check example a bit further. Besides functioning in paying for the groceries, it functions also in the linkage between the shopper and his bank. There are related linkages involving bank personnel, bank depositors, and borrowers, linkages involving banks and clearing houses, and linkages involving the banking system of the country, the government regulators, the federal reserve system, the deposit insurance system and so on. In many of these linkages there are textual instruments like checks, deposit slips, mortgage papers, regulatory manuals, and the like that function as props.

Note that the function of text is differential: it makes a difference by being involved in changing some of the properties of the systems in a dynamic and controlled manner. The check, in its travels through the banking system, functions in part by changing properties representing credit and value in different linkages.[3]

Since text is intimately related not only to a writer and a reader, but also to larger social and cultural entities, a scientific understanding of text is bound to play a key role in a number of disciplines such as history, area and civilization

studies, literary criticism, philosophy, and the like. In each case questions arise concerning the function of the text. What linkages do they function in? Are the functions artistic? Expressive? Interpretive? Expository? Mnemonic?

Functional considerations come up as well in trying to understand objects from the distant past. If an artifact represents text, we would want to understand how it related to the people involved, how it figured as a prop in a linkage and how it functioned as a prop-part. Did it function as a record of taxes due or paid? Did it have religious significance? Did it play a role in maintaining the status of a ruler or an elite?

5. The production of knowledge

Functional considerations are equally applicable to the texts of scientific discourse.

There has been a conception that the vast quantity of scientific books and journals in our libraries are the repositories of scientific knowledge. But knowledge is not an abstract thing or a commodity stored in texts: the books and journals are merely props. The texts function as prop-parts in linkages; their significance requires people. Knowledge is a property of a system. There is nothing mysterious about this. In some cases the systems are communicating individuals. In other cases the systems are linkages, including both texts and people.

In human linguistics, knowledge is seen as a cause or trigger for choice and for taking action. The knowledge of the customer and cashier that the groceries have been paid for stands as one of the causes for the subsequent actions that they take and the difference from what would have transpired had the groceries not been paid for. This can be understood either at the individual or linkage level. A person can decide to do something or a group can decide to do something. At both levels we can test our theories against the observable differences in future communicative and noncommunicative behavior using the normal methods of science and without leaving the physical domain.

Scientific research is thought of as cumulative. There has been the conception that when a person publishes the results of a scientific study, these results become public knowledge available for others to build on. But although the results may have been incorporated into the linkages of science, no individual scientist can make use of them unless he knows of them himself. Communicative interactions, mainly through the literature, then become crucial.

In many fields the literature is so vast that computer methods for searching databases for citations are essential. In the field of biomedical research, for example, a leading database

has more than 20,000 records related to AIDS alone. It is thus virtually certain that any given researcher will not have read everything related to his research and will not know of some results that might be very relevant.

Relevant articles may not even be available through straightforward searching, as my colleague Don R. Swanson (1986a, 1990b) has pointed out. Some important connections between different published results may exist only at the linkage level. Suppose there is a literature, a group of articles functioning as prop-parts in linkages, that reports that drug A alters blood levels of hormone B. Call this the AB literature. There may also be a BC literature that reports that hormone B influences the course of disease C. There is a structural implication at the linkage level, therefore, that drug A may be a potential cure for disease C, but this possibility of a cure may not be known to any individual. Furthermore, any published suggestion of such a cure, if it exists, may not be easy to find through the databases of citations, for there may be no citations in the AB literature to the BC literature and vice versa, no other articles that cite articles in both the AB literature and the BC literature, and the A, B, and C literatures may be huge, numbering into the thousands or tens of thousands each.

But if the structurally implied possibility of a cure could be found by an appropriate search strategy, an individual could discover new knowledge in the literature, inexplicit, unintended, and unknown to any one person. This has been shown most dramatically in a brilliant series of studies carried out by Swanson (1990b).

In Swanson's first study (1986c) he was able to suggest that dietary fish oil might benefit patients with Raynaud's syndrome, an episodic shutting off of the blood supply to fingers or toes, usually triggered by cold. This was independently demonstrated in a clinical trial two years later (ref. in 1990b). In Swanson's second study (1988) he found eleven indirect connections in the literature that led to an inference of a causal connection between magnesium deficiency and migraine headache. In his third study (1990a) he called attention to implicit connections between dietary arginine, an amino acid, and blood levels of somatomedins, a potentially fruitful but neglected area of research with implications for the decline with age of thymic function and protein synthesis and for the emaciating effects of AIDS.

Swanson's work counts as scientific research in two senses. In the first sense it counts as biomedical research since it is concerned with finding plausible biomedical hypotheses that may be worthy of laboratory or clinical research. In the second sense he is investigating the properties of large and complex interacting linkages involving biomedical texts, citation indexes, abstracts, related databases, and the medical researchers and information

specialist who are coupled to them. He is concerned with the dynamic means by which properties existing only at the linkage level can be and are restructured at the individual level where they can effect individual action. This facet of Swanson's research makes important theoretical and experimental contributions to a human-linguistic understanding of text and its role in the coordination of an important social institution.

6. Scientific and philosophical theories of knowledge

I am aware that Swanson has conceived of his work as falling within an exploration of what the philosopher Karl R. Popper calls World 3, which contains "products of the human mind" (Popper and Eccles 1977:16) and includes language, stories, myths, tools, scientific theories, and the like. This involves a version of an older and different view of knowledge than the one suggested here in terms of the properties of individuals, props, and linkages. Although Popper's view of science is closer to the best practice of scientists than, for example, the views of the positivists,[4] one must reject his views of linguistic matters as appropriate for a linguistic science, for they are philosophical rather than scientific. As Swanson says:

> I do not mean to suggest that the reality of objective relevance, or objective knowledge, or of World 3 for that matter, is either obvious, testable, or provable. The reality of World 3 is postulated within a philosophy of knowledge that one can adopt provisionally to see whether it is helpful, whether it throws light on problems that otherwise remain obscure. [1986b:391]

Although it may be that Popper's views were helpful to Swanson in stimulating and guiding his research, the above quotation expresses my objection to Popper's World 3 as an explanatory assertion about language: It is not scientifically testable, nor is it meant to be.

Popper himself points out:

> There are, incidentally, two corresponding methods of criticizing an assertion. The first method ("scientific criticism") criticizes an assertion by drawing logical consequences from it (perhaps from a conjunction with other, unproblematic assertions), and by trying to find consequences which are unacceptable. The second method ("philosophical criticism") tries to show that the assertion is not really demonstrable: that it cannot be derived from intuitively certain premises, and that it is itself not intuitively certain.
>
> Almost all scientists criticize assertions by the first method; almost all philosophical criticism I know proceeds by the second method. [Popper and Eccles 1977:173]

This particular quotation, however, insufficiently recognizes that unacceptable consequences in science involve tests against the real world through observation and experiment. As Swanson says:

> Scholars whose work is interpretive, such as in the humanities, may face especially difficult problems in evoking a clear confrontation with reality. But, ultimately, no one is free to ignore the real world. [1986a:106]

Much of what Popper puts in World 3, which is simply postulated in his philosophy, would be treated in human linguistics in the real-world terms of linkage theory and thus be fully in the realm of science and open to scientific rather than philosophical criticism. Considering Popper's high regard for the results of scientific criticism, it would be consistent of him to accept a view of linguistics that moves it and related areas of the social and behavioral sciences fully into the mainstream of science.[5]

NOTES

I should like to thank Don R. Swanson and Deborah L. Gillaspie for their suggestions for improving the manuscript.

1. The objects of language and grammar such as signs, sentences, words, meanings, nouns, verbs and such are not objects given in advance of theory: they are themselves objects of theory introduced by assumption (Yngve 1983). Since there are no corresponding objects of the real world to test them against, they cannot be subjected to the standard criteria of acceptance of science, namely comparison of the theoretical objects with observations of the corresponding real-world objects that they are supposed to be a theory of. This impossibility of applying standard scientific tests of acceptance in traditional research approaches is responsible for the plethora of theories found there and the unresolvable arguments between their proponents (Yngve 1986).

Of course language and the objects of grammar seem very real to us. This is the result of our training, both the conceptual structure inherent in our culture and inherent in the philosophical-grammatical tradition which we learn as linguists. It also results from a very natural psychological process of projection. We observe people speaking and project a language on them. We gain the illusion that there is a language out there; that it has some kind of reality. This process of projection can be studied in its own right, but its existence does not argue for the existence of the illusory semiotic or grammatical objects projected.

2. It is important to realize that none of the systems in human linguistics resembles a grammar, either a formal grammar or a "psychological" grammar or a grammar of a community or of a language. We must reject a split focus of trying to study people as "language users," that is, trying to study them indirectly through the traditionally given concepts of language and grammar stemming from Aristotle and the Stoic philosophy of knowledge of 150 B.C. (Yngve 1981, 1986). We cannot accept that people have language or grammar in their heads that they use in speaking and understanding. There is no scientific evidence that supports such a concept of people. It is simply a conceptual structure borrowed in the nineteenth and twentieth centuries from the grammatical tradition by a linguistics desiring to become scientific. The assumption that people have grammars in their heads or that they literally use language in communicating can never lead to scientifically acceptable results because statements concerning language and grammar cannot be scientifically tested against real observable objects. But for a long time this was the only game in town. For example, the neogrammarians espoused an interest in physiological and psychological studies but inevitably expressed their results in traditional terms of language and grammar.

Problems of a split focus in linguistics between language and people continue to plague the discipline today where they afflict even the best work. Much of the current literature runs into these problems because it tries to focus both on language and on people and attempts to use both the methods of grammar and of science. My own work of two and three decades ago was also flawed by such a split focus.

3. We owe an appreciation of the differential nature of information to the work of Claude Shannon, who pointed out that information is related to choice and the constraints on choice. In human linguistics, choice and constraints are represented in the dynamic properties of systems that stand as scientific theories of physical objects.

4. The positivists promoted a philosophy of science that presented a distorted caricature of science. Compare Swanson (1986a:104): "a profoundly mistaken view of science."

5. It should be noted that I am making no claims in this paper beyond the scope of linguistics, broadly interpreted. In particular I am not making any philosophical or other claims about the mind-body problem, and at this point I neither endorse nor dispute Popper's or any other claims in that area. One could easily have a dualistic explanation of why Bill decides to propose marriage to Marie, who can only understand French, and a scientific explanation of why he tries to propose to her in French rather than in English. I do think, however, that the incorporation of linguistics into the scientific mainstream weakens the case for believing in mind-body dualism.

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